PUBLIC ADMINISTRATION CAPABILITIES DEMONSTRATED BY ENVIRONMENTAL HEALTH OFFICIALS OF THE CITY OF CAPE TOWN DURING THE COVID-19 PANDEMIC

by

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DECLARATION

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PUBLIC ADMINISTRATION CAPABILITIES DEMONSTRATED BY ENVIRONMENTAL HEALTH OFFICIALS OF THE CITY OF CAPE TOWN DURING THE COVID-19 PANDEMIC

I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the dissertation to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.



23 December 2025

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DATE

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DEDICATION

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ABSTRACT

The novel COVID-19 pandemic brought about critical insights and valuable lessons in the field of Public Administration. This dissertation explores the public administration capabilities demonstrated by environmental health officials of the City of Cape Town, to meet challenges posed by the COVID-19 pandemic. Employed during the COVID-19 pandemic from 15 March 2020 to 4 April 2022.

To achieve this a qualitative approach was adopted and a case study design used to conduct the research. This case was studied through focus group discussions with (*n*=27) environmental health practitioners and with *(n=13)* senior environmental health practitioners. One on one interviews with (*n*=14) environmental health managers as well as a content analysis of documents such as organisational policies, legislative frameworks and guidelines.

This primary and secondary textual data was analysed through explanation building and double hermeneutic techniques to gain a deeper understanding of experiences and behaviour of the environmental health officials. Findings revealed that of the six known public administration capabilities (reflexivity, resilience, responsiveness, reciprocity, revitalising and rescaling), the capabilities of revitalising, resilience and responsiveness were the most prominently displayed by environmental health officials. A deeper understanding of these capabilities can inform and refine future interventions for enhancing public health response during crises situations.

Key Terms: environmental health officials, environmental health practitioner, COVID-19, pandemic, challenges, capabilities, response, ability, Public Administration, COVID-19 protocols, regulations, environmental health functions, public health

OPSOMMING

Die nuwe COVID-19-pandemie het kritiese insigte en waardevolle lesse tot die vakgebied Publieke Administrasie bygedra. Hierdie verhandeling verken die publieke-administrasievermoëns wat omgewingsgesondheidsamptenare van die Stad Kaapstad gedemonstreer het in reaksie op die uitdagings van die COVID-19-pandemie. Die studie fokus op amptenare wat gedurende die COVID-19-pandemie vanaf 15 Maart 2020 tot 4 April 2022 in diens was.

'n Kwantitatiewe benadering is gevolg en 'n gevallestudie-ontwerp is gebruik om die navorsing te doen. Die ondersoek is uitgevoer deur middel van fokusgroepbesprekings met (*n*=27) omgewingsgesondheispraktisyns en *(n=13)* senior omgewingsgesondheidspraktisyns. Daarbenewens is een-tot-een onderhoude gevoer met (*n*=14) omgewingsgesondheidsbestuurders, tesame met 'n inhoudsanalise van organisatoriese beleide, wetgewende raamwerke en riglyne.

Die primêre en sekondêre tekstuele data is ontleed deur gebruik te maak van verduidelikingsbou en dubbele hermeneutiese tegnieke om 'n dieper begrip te verkry van die ervarings en gedrag van die omgewingsgesondheidsbeamptes. Die bevindinge het getoon dat van die ses erkende publieke-administrasievermoëns (refleksiwiteit, veerkragtigheid, responsiwiteit, wederkerigheid, revitalisering en herskalering), die vermoëns van revitalisering, veerkragtigheid en responsiwiteit die prominentste deur omgewingsgesondheidsbeamptes gedemonstreer is. 'n Dieper begrip van hierdie vermoëns kan toekomstige intervensies inlig en verfyn wat daarop gemik is om publiekegesondheidsresponse tydens krisissituasies te versterk.

Sleutelterme: omgewingsgesondheidsbeamptes, omgewingsgesondheidspraktisyn, COVID-19, pandemie, uitdagings, vermoëns, reaksie, vermoë, Openbare Administrasie, COVID-19-protokolle, regulasies, omgewingsgesondheidsfunksies, openbare gesondheid

ISISHWANKATHELO

Ubhubhane omtsha we-COVID-19 uzise ulwazi olubalulekileyo kunye nezifundo ezibalulekileyo kwicandelo loLawulo lukaRhulumente. Le dissertation ihlola amandla olawulo lukarhulumente abonakaliswe ngamagosa ezempilo yokusingqongileyo eSixeko saseKapa, ukuhlangabezana nemingeni ebangelwe ngubhubhane we-COVID-19. Yaqashwa ngexesha lobhubhane we-COVID-19 ukususela nge-15 kaMatshi 2020 ukuya kwi-4 ka-Epreli 2022.

Ukuze kufezekiswe oku, kwamkelwe indlela esemgangathweni kwaye kwasetyenziswa uyilo lwesifundo sophando ukwenza uphando. Eli tyala lafundwa ngeengxoxo zamaqela agxile kwiingcali zempilo yokusingqongileyo (*n*=27) kunye nabasebenzi abaphezulu bezempilo yokusingqongileyo (*n*=13). Udliwanondlebe lomntu ngamnye nabaphathi bezempilo yokusingqongileyo (*n*=14) kunye nohlalutyo lomxholo wamaxwebhu anjengemigaqo-nkqubo yombutho, izakhelo zomthetho kunye nezikhokelo.

Le datha yombhalo oyintloko nowesibini ihlalutywe ngokwakha ingcaciso kunye neendlela eziphindwe kabini zokuqonda amava kunye nokuziphatha kwamagosa ezempilo yokusingqongileyo. Iziphumo zityhile ukuba kwizakhono ezintandathu ezaziwayo zolawulo lukarhulumente (ukuguquguquka, ukuqina, ukuphendula, ukubuyisela, ukuvuselela kunye nokuhlaziya), amandla okuvuselela, ukuqina kunye nokuphendula zezona zibonakaliswe kakhulu ngamagosa ezempilo yokusingqongileyo. Ukuqonda okunzulu kwezi zakhono kunokwazisa kwaye kuphucule amanyathelo okungenelela kwixesha elizayo okuphucula impendulo yempilo yoluntu ngexesha leemeko zentlekele.

Kamagama Aphambili: amagosa eMpilo yokusingqongileyo, ingcali yeMpilo yokusingqongileyo, i-COVID-19, ubhubhane, imingeni, amandla okusebenza, impendulo, isakhono, Ulawulo LukaRhulumente, Imigaqo ye-COVID-19, imimiselo, imisebenzi yezempilo yokusingqongileyo, impilo yoLuntu

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LIST OF ABBREVIATIONS AND ACRONYMS

COVID-19	Coronavirus disease 2019
ECD	Early Childhood Development
EH	Environmental Health
EHP	Environmental Health Practitioner
ERC	Ethics Review Committee
HMT	Health Management Team
NDOH	National Department of Health
NICD	National Institute for Communicable Diseases
PDR	Plan-Do-Review
PEHP	Principal Environmental Health Practitioner
SEHP	Senior Environmental Health Practitioner
WHO	World Health Organisation

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CHAPTER 1: GENERAL INTRODUCTION

“In the midst of chaos, there is also opportunity.”

- Sun Tzu, *The Art of War.*

1.1 Introduction to the study

The Novel Corona virus (COVID-19), one of the most devastating public health crises in history was declared a pandemic by the World Health Organisation on the 11th March 2020 (Cucinotta & Vanelli, 2020:157). Globally, the pandemic had a profound impact on people’s lives. It changed the way people socialised, worked, and went about their normal activities (Chakraborty, Kumar, Karn, Srivastava & Mondal, 2023: 33).

Like many cities across the world, the City of Cape Town was not immune to the impact of this pandemic. Challenges caused by the pandemic's outbreak were also felt by the Environmental Health Department of the City of Cape Town. The department had grapple with the challenge of simultaneously fulfilling its Constitutional mandate while rendering quality Environmental Health Services to combat the pandemic with limited resources. Operating strictly within established departmental policies was challenging, highlighting weaknesses in the existing service delivery framework that necessitated improvement and adaptation.

Looking back at this experience, the following question arises: How did officials in the Environmental Health Department of the City of Cape Town overcome challenges posed by the COVID-19 pandemic? The purpose of this study was to find out which capabilities were demonstrated by environmental health officials of the City of Cape Town to overcome these challenges. This chapter provides a background and rationale for the study, the research problem and sub-questions, a clarification of key concepts, research purpose and objectives, the design as well as ethical considerations. In the end the chapter provides a layout of the dissertation.

1.2 Background and rationale of the study

The idea for this research originated during the COVID-19 pandemic within the context of the Environmental Health Services of the City of Cape Town. There are two operational units within the City of Cape Town's Health Department, namely; Primary Health Care, which focuses on the curative side of healthcare and Environmental Health, which focuses on preventative aspects of public health. Environmental Health takes a proactive approach, which emphasises that prevention is better than cure. If the service is inadequately rendered, it puts a huge strain on healthcare facilities (for example on clinics, community health centres and hospitals), as many people tend to fall ill due to public health hazards which are not always adequately controlled, such as the COVID-19 pandemic. This includes an extra burden brought about by financial implications of these types of disasters which tend to have a negative impact on human resources.

Public health, basic medicine, and clinical medicine are the key components that define Western medicine. The COVID-19 pandemic revealed weaknesses that exist within South Africa's public health system (Tang, 2021: 99).

Environmental Health seems to be accorded lower priority within the health sector in Cape Town when compared to Primary Healthcare. Environmental Health practitioners (EHP's) as a result are greatly demotivated which in turn affects their ability to effect change (Lewin & Strauss, 1999: 256).

The purpose of this study is to identify capabilities needed by the Environmental Health Department of the City of Cape Town to meet challenges posed by the COVID-19 pandemic. EHP's worked tirelessly during COVID -19 to try and manage the crisis, which proved to be the ultimate test for the Environmental Health Department within the City of Cape Town, exposing in the process weaknesses and strengths in the system. Valuable insights were gained, and if thoroughly analysed, these lessons can serve as a foundation for enhancing the overall effectiveness of Environmental Health operations. During this difficult time key observations were made on how the Environmental Health Department responded to the pandemic

and the impact the pandemic had on Environmental Health wholistically, which served as a motivation for this study.

EHP's were inundated with additional tasks related to the management of COVID-19, which many found overwhelming. This negatively affected their ability to fulfil other Environmental Health related functions, such as routine food sampling, water sampling, investigation of complaints and other communicable diseases.

The ability to function within a resource constrained environment (for example, staff, financial and personal protective clothing) tested their ability and strength. Officials would frequently be booked off sick due to contracting the virus, adding strain on the rest of the team and operations.

A challenging aspect of the COVID-19 pandemic journey on practitioners was the need to keep up with frequent changes in legislation, in particular, Disaster Risk Management Regulations which were introduced during that period to regulate among others the wearing of masks, social gatherings and funeral protocols.

As an enforcement agency, working under pressure, a key challenge was for practitioners to familiarise themselves with this new and frequently evolving legislation.

Throughout this experience, some of the challenges encountered related to the adequate procurement and supply of personal protective equipment (PPE), which in many instances affected practitioner's ability to execute their duties in this context. Due to the nature of the virus, PPE, in particular face masks, soap and sanitizer were vital in protecting practitioners working in the field.

In terms of workplace safety, various teams were split up. Some worked on a rotational basis with 50% in office and others worked from home. This arrangement was contrary to the traditional way of working. It was interesting to find that despite disruptive work patterns and being away from the office, teams still met their targets and were even more efficient when using this hybrid model.

Operational and communication challenges were noted between Primary Health and Environmental Health Sections during the pandemic. This was largely because

of the lack of knowledge of the Environmental Health's mandate in disease prevention, the traditional silo way of working and poor channels of communication. Which led to the misalignment in approach of the two most important public health entities. Improved synergy between primary health and environmental health is therefore required to adequately deal with pandemics of this magnitude.

There are ongoing tensions between Environmental Health bodies at local, provincial, and national government levels - such as the City of Cape Town, Western Cape Provincial Health, and the National Department of Health - stemming from longstanding issues that hinder growth at local level.

Typically, emergency plans are drafted and executed at local level, leaving the National and Provincial level in an awkward position as they hold power over local municipalities (McDonald, Goodman & Hatch, 2020: 187–188). In addition, efforts to address the COVID-19 pandemic were not synchronised, resulting in loss of time, funding, insufficient resources and low morale.

According to Tulenko and Vervoort (2020: 464), knowledge and understanding is lacking when it comes to the new ideas and innovative solutions to problems pertaining to health. The rate at which medical peer reviewed journals are being published is decreasing.

It is time for public health departments to apply for research funding as it might be too late when post pandemic stability is reached. Due to COVID-19, new smart technologies emerged that can be leveraged to quickly streamline public health services.

The COVID-19 pandemic offers a chance for large-scale comparative research on policy effectiveness. Furthermore, it has driven improvements in policymaking and fostered the growth of administrative capabilities, promising better public sector resilience, service delivery and equality (Dunlop, Ongaro & Baker, 2020: 366).

In first world countries such as Singapore, governments mode of community engagement was somewhat different to that of South Africa during the COVID-19 pandemic. Singapore's government emphasised long-term benefits of COVID-19

restrictions although perceived as inconvenient in its communication with citizens (Abdulla & Kim, 2020: 771). As a result, the public had a less confrontational approach to decisions made by government pertaining to public health (such as curfews, social distancing and waring of face masks). Senior public health officials were invited to press conferences where they maintained message consistency, which resulted in the nation understanding the rationale behind the restrictions. This collaborative approach received buy-in from the nation and helped to improve public health holistically (Abdulla & Kim, 2020: 771-773).

There is therefore an opportunity for the City of Cape Town to adopt a similar approach to get buy-in from communities. It is important to get communities to understand long-term effects of public health decisions and how their actions affect the health and well-being of others.

Soujaa, Nukpezah and Benavides (2021: 1018) state that public health crises test the readiness and response abilities of local government.

It is evident that a relationship exists between COVID-19 and each of the nine Environmental Health functions. Furthermore, they both have people in common. Highlighting opportunities the COVID-19 pandemic has brought about by analysing areas of weakness and the effort required to address crisis situations, senior managers will be better equipped to make decisions that will enhance Environmental Health Service within the City of Cape Town.

1.3 Research problem statement and questions

Given the above background and rationale for this study, the provisional or pre-scientific problem statement seeks to explore how officials in the Environmental Health Department of the City of Cape Town overcame challenges posed by the COVID-19 pandemic. The research problem for therefore is: Which public administration capabilities did public officials in the City of Cape Town display to overcome challenges posed by the COVID-19 pandemic while performing Environmental Health functions? The implied argument of this question is the following:

- environmental health officials performed certain functions as outlined by their normal job description;
- the emergence of the COVID-19 pandemic led to the introduction of new regulations and guidelines that they were required to follow while carrying out their duties;
- the regulations and guidelines, together with the nature of the pandemic, created significant challenges that hindered their ability to carry out their duties as usual;
- therefore, to overcome these challenges, it is necessary for them to apply certain capabilities.

With the above outline of the problem statement in mind, certain secondary questions arise which need to be addressed by this study. These questions are as follows:

1. What is 'public administration capabilities' within the context of public administration challenges?
2. What are characteristics of the environmental health functions of the City of Cape Town at the time before the outbreak of the COVID-19 pandemic?
3. What was the nature and scope of the COVID-19 regulations and guidelines applicable to the Environmental Health Department?
4. In what ways did COVID-19 regulations make it difficult for environmental health officials in the City of Cape Town to carry out their duties?
5. How did public administration capabilities enable environmental health officials to address the COVID-19 related challenges?

While this study originated from a practical or pre-scientific problem experienced within the operational context of the Environmental Health Department of the City of Cape Town, the research was done within the theoretical context of the field of Public Administration. This context is outlined for this study through a review of the scholarly literature which is discussed next.

1.4 Research purpose and objectives

The purpose of this study is to address the research problem as identified in section 1.3 by identifying capabilities required from public officials of the City of Cape Town during the COVID-19 pandemic to perform the Environmental Health functions. To meet this purpose, this study has four objectives which are discussed next.

The first objective is to obtain a theoretical perspective on 'public administration capabilities' through a systematic literature review. In order to understand the context of the environmental health officials, the second objective is to describe characteristics of the Environmental Health functions performed by officials of the City of Cape Town before the COVID-19 pandemic. This will be done by conducting a content analysis of secondary textual data, namely relevant official documents that set out the Environmental Health Service Mandate within South Africa, as well as by obtaining primary data from interviews with selected officials.

The third objective is to describe the nature and scope of the COVID-19 regulations applicable to the Environmental Health Department. This will also be done by conducting a content analysis of secondary textual data, as well through obtaining primary data through interviews with selected officials.

The fourth objective is to identify challenges posed by COVID-19 regulations to the capacitate Environmental Health officials in the City of Cape Town to perform their functions. This part will be done primarily by collecting primary data from selected officials through semi-structured interviews and focus group discussions. These interactions would be limited to Environmental Health staff only.

The fifth objective is to demonstrate how public administration capabilities enable environmental health officials to address the COVID-19 related challenges. This will be done by analysing both the secondary and primary data obtained participants. This part will primarily be of a conceptual nature utilising theoretical instruments to interpret empirical data used in combination.

1.5 Literature review and theoretical perspective

The purpose of the literature review was to obtain a theoretical perspective on the research topic. This was done by sourcing the most relevant scholarly literature on administration capabilities necessary for public environmental health officials dealing with unexpected challenges such as the COVID-19 pandemic. The literature reviewed was systematically identified by surveying books, official documents, and academic databases which include Web of Science, Scopus, EBSCO and the UNISA library guide. Research contributions were discovered using the following key words: environmental health, COVID-19, public health, capabilities, government and challenges. The research originated mainly from the United Kingdom, Portugal, Australia, South Korea, China, Netherlands, United States of America and South Africa. Most of these contributions were published from 2020 to 2023. Informed by the literature review, key concepts from the research problem were identified as outlined in the following paragraphs.

1.5.1 Environmental health services and functions

The concepts ‘environmental health services’ and ‘environmental health functions’ are used in this study with relative similar meanings. Wright, Mathee, & Oosthuizen (2013: 20-21) define the concept ‘environmental health’ as “a branch of public health concerned with all aspects of the natural and built environment that may affect human health”. Furthermore, within the context of the World Health Organization (WHO) the concept ‘environmental health services’ is defined as “those services implementing environmental health policies through monitoring and control activities” (Drew, Van Duivenboden & Bonnefoy, 2000: 35).

These functions also entail the promotion of the improvement of environmental parameters and encouraging the use of environmentally friendly and healthy technologies and behaviours. They also have a leading role in developing and suggesting new policy areas. EHP’s are the driving force of Environmental Health Services within South Africa (Wright, et al., 2013: 20-21).

Within the South African context, in the national sphere of government, environmental health as prescribed by the National Environmental Health Policy (2013: 7) include the following functions; water quality monitoring; food control; waste management; surveillance of premises; communicable diseases control; vector control; environmental pollution control; disposal of the dead; chemical safety and noise control; port health; malaria control; hazardous substances control; and air quality management.

In the local sphere of government, environmental health entails the performance of the following functions; water quality monitoring; food control; waste management; vector control; environmental pollution control; surveillance and prevention of contagious diseases; and disposal of the dead (Wright, 2013: 20-21).

In South Africa, there has been a distinct lack of engagement and understanding, particularly at senior leadership level of the role that EHP's play in disease prevention and mitigation. EHP's play a crucial role in the prevention of health impacts, yet their role is often undervalued and capabilities not acknowledged (Ryan, Swienton, Harris & James, 2020: 1-3). COVID-19 has presented an opportunity for the revitalisation and marketing of the environmental health service and profession.

Furthermore, Rodrigues et al. (2021: 2) suggest that public health has a history of being underfunded in most countries. Thus, leaving environmental health with limited human resources to execute their functions, which is exacerbated during disaster situations. Preference and attention is often primarily given to a curative approach which is reactive in nature over the preventative (proactive) approach which forms the focal point of the environmental health service.

An increase in personnel will enable ability to "test, trace and isolate" (Day, 2021: 112), operations which are critical part in pandemic situations. This method is effective against a host of pathogens. Acquiring information from apprehensive positive cases calls for a certain level of skill. This practice is best used in the local sphere of government when environmental health services collaborate with communities, General Practitioners (Doctors) and various heath establishments.

It is recommended that this niche role be incorporated into emergency plans on local and national level (Day, 2021: 112-113). According to Moonasar, Pillay, Leonard, et al. (2021: 1-5), during COVID-19 a gap in enforcement strategies covering the wearing of masks, social distancing and proper hand hygiene practices was observed. This is already a vulnerable area within Environmental Health, with the main complexity being maintaining the balance between education and enforcement. The long-winded legal process adds to this challenge as it is one of the factors that contribute to EHP's opting for an educational route to solve maters.

A more cohesive and effective Environmental Health service in health crisis situations can be achieved if policy recommendations such as line management function, delegations and operational lines of authority are adopted (Oosthuizen, et al., 2022: 9).

1.5.2 COVID-19 as a challenge

In the South African context, the government was confronted with a serious challenge brought about by the outbreak of COVID-19. The capacity to protect the public during this time was the test, this led to the implementation of lockdown measures that restricted the movement of people and the way in which work was done (Wessels, 2022: 148-150).

Joint ventures between Public and Private entities allowed for resource and capacity optimisation. The capacity building advantage of private sector mergers allows local government to efficiently deal with crises such as disease outbreaks and places less strain on officials who are in most cases understaffed and under resourced (Moonasar, et al., 2021: 4).

The concept of a 'negative event' bringing about opportunities for positive change has encouraged policy analysis and transformation within government. The challenge for social scientists is how to not lose the lessons learnt by the pandemic. The COVID-19 crisis taught all those involved that this is a time of development challenges (Hulme & Horner, 2020: 188-190). Public health officials are devoted in learning and applying lessons from pandemics and other health threats. Placing the

pandemic in the context of public administration is vital. Evidence based management must be enhanced to address public health and similar emergencies (Holzer & Newbold, 2021: 453).

As Moonasar, et al. (2021: 3) summarises, key challenges and lessons learnt during the first stage of COVID-19 in South Africa are; “active and informed use of epidemiological data, community engagement and risk communication, risk-adjusted strategy, capacity building and contact tracing and community screening.”

The integrated response to COVID-19 brought together various professionals within the health sector spectrum. This offered a window of opportunity to learn from other professionals and agencies. Simultaneously, showcase the skills of Environmental Heath, particularly the use of risk-based and holistic approaches to address complex health situations (Day, 2021: 104).

Strategic leadership plays a pivotal role in ‘seeking opportunities from crises.’ Doors are open to leverage the concept of opportunity management to address crisis situations and to improve service delivery after a pandemic. Strong co-ordination on public health matters is essential, steering committees consisting of multi-disciplinary members including public health experts can be set up to discuss infectious disease control such as COVID-19 (Jing, 2021: 644).

1.5.3 Public administration capabilities

Public administration capabilities are discussed in detail in Chapter 2 of this dissertation. The discussion indicates that the “capability approach” (Sen, 1994: 339) can be used in various forms and contexts. In terms of the functioning context, capabilities are a set of alternative functions from which an individual can select a certain combination of capabilities responding to unique challenges. Adapted from Nussbaum (1999: 233) description of the “capabilities approach”, the core question is what can environmental health officials actually do and be? This means that attention is not only given to the resources at hand, but rather on how they are used or not used, allowing officials to function within diverse circumstances.

South Koreas ability to adapt and readiness to learn allowed Public Health officials and Policy makers to exchange ideas, interpretations and experiences of the problem which led to the construction of three enhanced capacities to handle future communicable diseases. These are: Reflective improvement capability, collaborative capability, and data analytic capability (Lee, Yeo & Na. 2020: 730-731).

According to Termeer, Dewulf, Breeman and Stiller (2015: 635), there is a need to strengthen government's capability to adequately respond to complex situations that are in constant evolution. Policy makers' decisions must reach equilibrium between the upholding of core democratic values and being effective. They identify four governance capabilities, namely; reflexivity, resilience, responsiveness and revitalising (Termeer, et al., 2015: 635). These four capabilities, together with the capabilities of reciprocity and rescaling, are analysed in more detail in Chapter 2.

1.6 Clarification of the key concepts in the research problem statement

The research problem and purpose statement as well as sub-questions and research objectives consists of a variety of concepts with distinct meanings. As these concepts are crucial for a clear understanding of the research process, they are briefly analysed and clarified in the following paragraphs.

1.6.1 COVID-19 pandemic

Is a global on-going pandemic that is caused by coronavirus disease 2019 (COVID-19). Coronaviruses are a large group of viruses which circulate among animals and birds, however transmission to humans is possible (World Health Organization, 2023). The COVID-19 is closely related to two other viral infections, such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) (Peiris & Poon, 2021: 814). The SARS and MERS first occurred in 2003 and 2012 respectively. The difference is that the spectrum of coronavirus disease is broad this time with about 80% cases of mild infection, 14% severe illness, and 6% critical (Aslam & Akram, 2020: 3-4). Pandemics are often new communicable

diseases. Viral diseases such as COVID-19 are most likely to turn into pandemics (Doraiswamy, Mamtani & Cheema, 2021: 2).

1.6.2 Public Health

The science and art that concentrates on community, hygiene and sanitation and the relationship between individuals and their environment (Hill, 1929: 97). Evans (2022: 1-2) describes public health as the practice of preventing disease and promoting good health within groups of people, from small communities to entire countries.

1.6.3 Environmental Health

A branch of public health. According to (Kelley & Covi, 2013: 68), the discipline of environmental health may be described as the identification and characterisation of hazards and the development, implementation and evaluation of appropriate intervention strategies to limit physical, chemical, biological, sociological and other hazards and associated risks in our environment'.

1.6.4 Environmental Health Practitioner (EHP)

EHP refers to a person registered in terms of section 34 of the Health Professions Act 56 of 1974 who performs functions or duties as prescribed in the schedule of the Scope of Professions of Environmental Health in the Republic of South Africa (RSA) (Health Professions Act 56 of 1974).

1.6.5 Capabilities

According to Termeer et al. (2015: 683), capabilities refer to "the ability of policy makers to observe serious problems and to act accordingly, as well as the ability of the governance system to enable observing and acting". This concept is analysed further in Chapter 2.

1.6.6 Service delivery

It is established as the core function of government. The distribution of an array of basic resources and services provided by government and required by citizens (for example, water, healthcare, waste management, land and sanitation). Service delivery can be defined as the contact of citizens with the public administration. In essence it is the mechanism of providing services to the community of a municipality (Wenene, Steen & Rutgers, 2015).

1.6.7 Challenge

In line with South Africa's Public Service Commission's objective in building a professional and equipped public service, the concept of challenge refers to those complex situations faced by the South African government that calls for a special skill set and competencies to address them (Wessels, 2020: 149-150). This concept is analysed further in Chapter 6.

1.7 Research design

The research design for this study is discussed in detail in Chapter 3. The discussion below is merely a summary.

Drawing from the work of Mouton, a research design is "a plan, framework, or blueprint of how you intend to conduct the research" (Mouton, 2022: 59). Therefore, this section briefly explains the plan, framework or blueprint necessary for identifying those capabilities needed by Cape Town officials during the COVID-19 pandemic to perform Environmental Health functions.

Mouton (2022: 61) identifies two categories of research designs, namely empirical and non-empirical. The research design is determined by the characteristics of the unit of analysis as well as the sources for studying it. The unit of analysis of this study is the Environmental Health practitioners within the City of Cape Town while the point of focus is their capabilities in dealing with crises.

While this unit of analysis is clearly an empirical phenomenon, the sources about

this phenomenon are also of an empirical nature.

1.7.1 The case selected for the study

The unit of analysis for this research is Environmental Health officials. While these officials are individuals, they share a specific function within an institution. Therefore, the emphasis is not on the behaviour of individuals, but on characteristics and behaviour of a specific group or collective (Wessels, Pauw & Thani, 2014: 170), namely an occupation class of Environmental Health officials.

However, this study will not include this occupational class globally or nationally but it is confined to a specific case of this phenomenon, namely the Environmental Health officials of the City of Cape Town.

1.7.2 Case selection strategy

The purpose of this research is to capture common experiences faced by EHP's and to establish a deep understanding of capabilities required to deal with a pandemic of such magnitude. The use of the COVID-19 phenomena is a springboard for recommendations which will enhance the environmental health service within the City of Cape Town. To meet the purpose of this study, it was necessary to consider and use an appropriate case selection strategy to select a case which is "either representative or typical of a phenomenon, or being critical, extreme, revelatory, longitudinal" or a case of replication logic (Wessels & Zongozzi, 2024: 281). The environmental health service of the City of Cape Town was selected as a representative or typical case of the unit of analysis 'environmental health officials.'

This selection strategy is not only the most used selection strategy in Public Administration research (Zongozzi, 2017: 263; Zongozzi & Wessels, 2016: 218; Wessels & Zongozzi, 2024: 281), but especially appropriate for "deeper understanding of a public administration phenomenon such as policy implementation." (Wessels & Zongozzi, 2024: 281).

1.7.3 Research design type

The literature shows that two research design types are available for case study research, namely a single-case design and a multiple-case design (Yin, 2018: 49-64). Within the context of Public Administration, the single-case design is most used in combination with the typical case selection strategy (Wessels & Zongozzi, 2024: 281-182). A single-case design was used for this study with the Environmental Health Department of the City of Cape Town as case.

1.7.4 Nature of data

The word ‘data’ is widely used in research methodology literature with reference to collection and analysis. Saunders, Lewis and Thornhill (2009: 590) use the word ‘data’ to refer to “facts, opinions and statistics”, while Stack (2018:205) consider data as “pieces of information yielded by a particular situation under investigation”. Mouton (2022: 61) classifies data into three categories, namely primary (collected during the case study), secondary (pre-existing sources) and hybrid (a mix of both). The current study not only collected data through interviews but also used documents as pre-existing data. According to the Mouton-classification this study used hybrid data.

1.7.5 Methods and techniques for data collection

As this study used hybrid data, it implies that the units of observation (sources of the data) were both human participants (environmental health officials) and documents (the interview transcripts and official documents). Firstly, the data from human participants were collected through interviews and discussions. Focus group discussions were conducted with EHP’s in the City of Cape Town (Environmental Health Practitioners and Seniors Environmental Health Practitioners).

In addition to these focus groups, individual interviews with environmental health managers were conducted (Principal Environmental Health Practitioners, various Head: Environmental Health, Area Managers, various Senior Managers).

Furthermore, participants were requested to provide naïve sketches to make sense of their experiences during the COVID-19 pandemic. Secondly, the method of content analysis was applied to documents such as organisational policies, procedures, legislative frameworks and relevant academic literature will also be used to source information.

1.7.6 Methods and techniques for data analysis

The standard techniques for data analysis in case study research using both primary and secondary data are time series analysis, pattern matching, cross-case synthesis, explanation building and logic models (Yin, 2018: 175-199; Zongozzi & Wessels, 2016: 229; Wessels & Zongozzi, 2024: 283-284). For the this study, only the explanation building technique, combined by a "double hermeneutic" technique was used (Thani, 2018: 26). The application of these techniques is discussed in more detail in Chapter 3.

1.8 Research ethics implications

The researcher and those being studied are considered equal collaborators in the project because the researcher works within the organisation under study. This position gives the researcher valuable institutional knowledge and a deep understanding of the organisation's context. However, this insider position of the researcher posed specific ethical challenges which were addressed during the research ethics application process. The Research Ethics Review Committee of the Unisa College of Economic Sciences granted research ethics approval for this study (Reference 3018) on 4 February 2025.

1.9 Chapter layout of the dissertation

The dissertation consists of the following chapters (see Figure 1.1):

Chapter one provides a general overview of the entire study.

Chapter two reports on meeting the **first research objective**, namely, a theoretical perspective on 'public administration capabilities' obtained through a systematised literature review.

Chapter three reports on the research design, methods and techniques, research ethics considerations and approval, as well as the research permissions process.

Chapter four reports on meeting the **second research objective**, namely a description of the characteristics of the environmental health functions performed by officials of the City of Cape Town at the time before the outbreak of the COVID-19 pandemic.

Chapter five reports on meeting **research objective three**, namely a description of the nature and scope of the COVID-19 regulations and guidelines applicable to the Environmental Health Department of the City of Cape Town.

Chapter six reports on **research objective four**, namely challenges posed by COVID-19 regulations to the ability of environmental health officials in the City of Cape Town to perform their functions. This chapter also reports on **research objective five**, by demonstrating how public administration capabilities enable environmental health officials to address the COVID-19 related challenges while performing their functions during the COVID-19 pandemic.

Chapter seven provides an overview of the study, a summary of the key findings, final conclusions and recommendations for further research and practice.

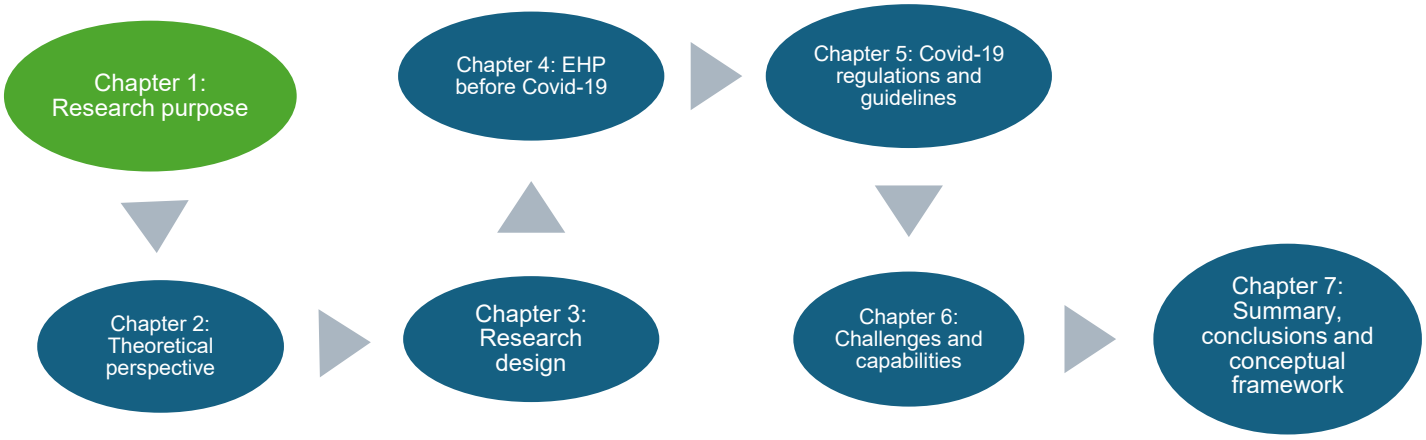


FIGURE 1.1: CHAPTER MAPPING

(Chapter titles in abbreviated form)

1.10 Conclusion

This study examines how environmental health officials experienced and addressed the challenges brought on by the COVID-19 pandemic, particularly in relation to their professional duties. This chapter outlined the background of the study, presented an overview of the research problem and objectives, and described the research design.

Chapter two offers a theoretical framework for understanding public administration capabilities that enabled environmental health officials to confront the challenges encountered during the pandemic.

CHAPTER 2: PUBLIC ADMINISTRATION CAPABILITIES: A THEORETICAL PERSPECTIVE

2.1 Introduction

As indicated in chapter 1, the purpose of this study is to determine and understand capabilities required from public officials to perform the Environmental health functions in the City of Cape Town during the COVID-19 pandemic. The first step towards reaching that purpose is to understand the meaning of the notion 'public administration capabilities'. Hence, the objective of this chapter is to obtain a theoretical perspective on 'public administration capabilities' through a systematic literature review. This theoretical perspective will serve as a theoretical lens for the empirical part of this study. Establishment of the work already done in relation to this study will serve in forming the theoretical framework. This chapter discusses the procedure that was followed to identify the relevant literature, provides a brief summary of the literature reviewed, identify and define key public administration capabilities, and deduce from the definitions defining characteristics of each capability.

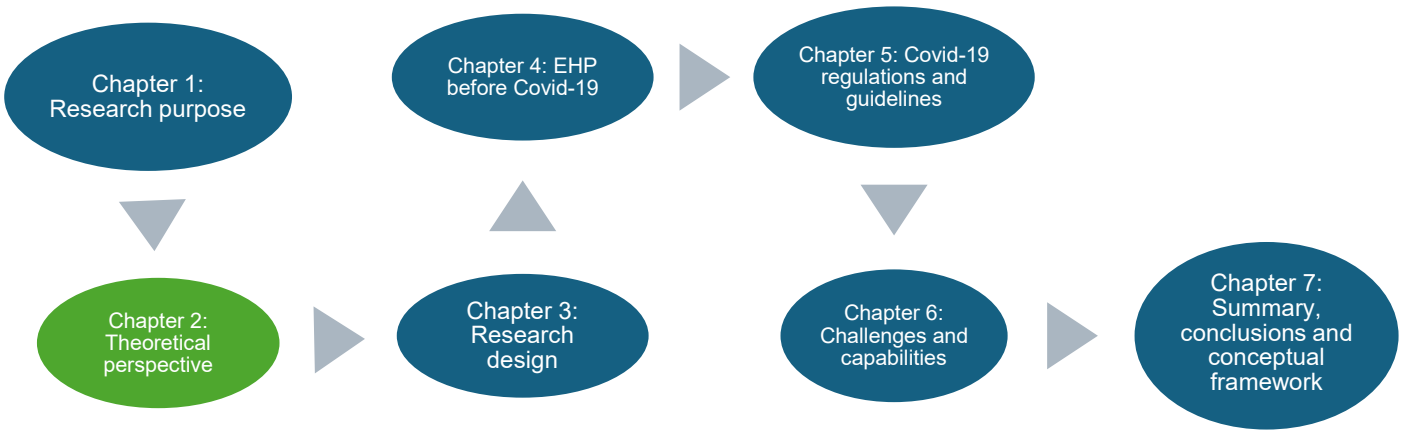


FIGURE 2.1: CHAPTER MAPPING

(Chapter titles in abbreviated form)

2.2 The concept 'public administration capability'

What is a capability? The Oxford English Dictionary defines 'capability' as the ability or qualities in order to do something. It is further described as possessing the power in general, whether physical or mental. The concept is not new in scholarly literature.

The renowned economist and philosopher Amartya Sen defined the concept 'capability' as a set "the functioning space, and stands for the set of alternative functioning combinations (or n-tuples) from which the person can choose one combination (or one n-tuple)" (Sen, 1994: 339). Nearly twenty years later Termeer et al. (2015: 683) defined a 'governance capability' as "the ability of policy makers to observe wicked problems and to act accordingly, and the ability of the governance system to enable such observing and acting". They elaborate further by identifying three dimensions of 'capability', namely that of "acting, observing, and enabling" (Termeer et al., 2015: 684).

Informed by this earlier work, Wessels (2024: 19) refers to capabilities as "necessary for public administration managers to function within their specific contexts" through their ability "to observe wicked problems and to act accordingly, and the ability of the governance system to enable such observing and acting". He refers to capabilities such as reflexivity, resilience, responsiveness, reciprocity, revitalisation and rescaling.

The above-mentioned capabilities are crucial components that ensure national health and economic development. Furthermore, they form a foundation for the support system required in responding to public health crises in an effective manner (Zhao, Bali, Kovacevic, Weintraub, 2021: 2-3).

2.3 Identification and summary of the literature

The literature review for this dissertation was informed mainly by three scholarly articles, namely that of Termeer et al. (2015), Termeer et al. (2016) and Wessels (2024). These three articles focus on public administration capabilities necessary in a changing world of work and dealing with challenging problems. The capabilities

identified in these articles were used as search terms during the systematic literature review.

The literature review was conducted using scholarly databases such as Web of Science, Scopus, Ebsco, UNISA library guide and the World Wide Web (www), commonly known as the internet. A survey of journals, articles, books and official documents was made. Research contributions were discovered using the following key words: environmental health, public health, COVID-19, capabilities, resilience, reflexivity, responsiveness, revitalising, reciprocity, rescaling, government and challenges. The research originated mainly from the United Kingdom, Portugal, Australia, South Korea, China, Netherlands, United States of America and South Africa. Most of these contributions were published from 1994 to 2024. It was discovered that several of the contributions reported on COVID-19 experiences, lessons learnt, practitioner capabilities, challenges that medical and environmental health personnel experienced during the pandemic and the various responses or approaches that countries undertook.

The purpose of the literature review was to identify the most relevant scholarly knowledge on capabilities necessary for public officials such as Environmental Health officials to render Municipal Health Services during unexpected events such as the COVID-19 pandemic. Capabilities were taken as the nucleus of the research and the type of capabilities required was explored. The most recognised or well-known capabilities are: Reflexivity, Resilience, Responsiveness, Reciprocity, Revitalising, and Rescaling. Table 2.1 provides a summary of the relevant literature identified during this review.

TABLE 2.1: SUMMARY OF LITERATURE REVIEWED FOR THIS STUDY

Source	Definitions of the public administration capabilities					
	Reflexivity	**Resilience**	**Responsiveness**	**Reciprocity**	**Revitalising**	**Rescaling**
Abdullah & Kim, 2020	Reflexivity refers to learning, particularly 3 phases of learning: in-between leaning, trial					

Source	Definitions of the public administration capabilities					
	Reflexivity	**Resilience**	**Responsiveness**	**Reciprocity**	**Revitalising**	**Rescaling**
	and error learning and contingency learning.					
Berbés-Blázquez, et al., 2022		Resilience rests on the principles or mechanisms of resilience that are intended to guide implementation and monitoring.				
Battersby, 2022			Responsiveness refers to EHP's technical skills and ability that was at premium during the COVID-19 pandemic.			
Bourgon, 2010; Eppel and Rhodes, 2018; Termeer et al., 2015; Termeer et al., 2016		Resilience denotes an adaptive capability for dealing with unpredictable public administration challenges.				
Dhesi, 2013	Reflexivity includes a Hybrid model – practitioner researching practitioners. Researcher position: 'insider and outsider'.					

Source	Definitions of the public administration capabilities					
	Reflexivity	**Resilience**	**Responsiveness**	**Reciprocity**	**Revitalising**	**Rescaling**
Eppel and Rhodes, 2018		Resilience refers to the ability to respond effectively to challenges.				
Goh and Soon, 2019	Reflexivity refers to leveraging on collaborative advantage with diverse stakeholders.					
Herrington and Herrington, 2005				Reciprocity suggests that Public Administration managers should be exposed to reciprocal teaching to instil this capability.		
Klepac, Mowle, Riley and Craike, 2023				'reciprocal accountability' for referring to 'a justification of local results against local targets set in the context of priorities determined by the centre'.		
Knassmüller and Meyer, 2013	Reflexivity denotes that this capability should be instilled on an appropriate level of complexity as required by the situation-specific tasks					

Source	Definitions of the public administration capabilities					
	Reflexivity	**Resilience**	**Responsiveness**	**Reciprocity**	**Revitalising**	**Rescaling**
	and responsibilities of public managers.					
Notten, 2016			Responsiveness includes responsive Managers that are aware of pressing and unlimited societal expectations and catastrophic failure and resource scarcity. Contextual responsiveness requires the circulation of knowledge, knowledge differentiation and knowledge enrichment to support a "proactive competency to link to and learn for the future".			
O'Neill and Glasson, 2019					Is "a possible pathway to sustainability" and a "possible circumvention strategy".	
Rosenbäck et al., 2023		Resilience refers to both proactive factors that relate to preparedness and reactive factors to be used when required.				
Rosenbäck et al., 2023		Resilience refers to a concept to evaluate that				

Source	Definitions of the public administration capabilities					
	Reflexivity	**Resilience**	**Responsiveness**	**Reciprocity**	**Revitalising**	**Rescaling**
		imagine of the work, how work was done on ground level and how successful the work was in order to improve the adaptiveness and quality				
Termeer et al., 2016	Reflexivity refers to observing conflicting frames, convincing others to accept a specific frame and furthering reflexive activities.	Resilience includes dealing with the intrinsic uncertainties and interconnectivity of public administration challenges through adapting "flexibly to unpredictable and frequently occurring and changing circumstances without losing identity and reliability.	Responsiveness suggests that Public Administration Managers has to observe and deal with unlimited demands and concerns that are pressing politics and society. Responsiveness contains the ability to know when to hold back and when to react." Ability to decide and react in a proactive manner.		Revitalising refers to the response to stagnations, powerplays or deadlocks of processes presenting themselves as counterproductive patterns or wicked problems. To prevent or mitigate the risk of regression or commencement with futile actions, the capability of revitalisation entails the unblocking of stagnations, the reanimation of processes and the changing of existing	Rescaling refers to, "the ability to address mismatches between the scale of a problem and the scale at which it is governed".

Source	Definitions of the public administration capabilities					
	Reflexivity	**Resilience**	**Responsiveness**	**Reciprocity**	**Revitalising**	**Rescaling**
					patterns of behaviour.	
Termeer et al., 2015	Reflexivity in this context does not refer to an individual capability, but a social or collaborative capability.					
Wessels & Potgieter, 2021			Responsiveness refers to Public Administration Managers that are actively risk sensitive within their work environments.			
Wessels, 2020						Rescaling is defined as being particularly relevant for dealing with ill-defined or wicked problems amid diverse and overlapping perspectives and jurisdiction spheres.

Source	Definitions of the public administration capabilities					
	Reflexivity	**Resilience**	**Responsiveness**	**Reciprocity**	**Revitalising**	**Rescaling**
WRR, 2013			Responsiveness refers to a feature that does not occur in a vacuum, but in a specific context of time and space. To develop Public Administration Mangers responsiveness capability, focus should be placed on innovation in public administration.			
Zimba, 2021		Adaption and resilience can function synergistically in order to thrive under challenging conditions.				

2.4 Defining characteristics of each attribute

The next section analyses and interactively discuss various definitions based on the literature reviewed. The aim is to denote from them common characteristics and arrive at a suitable definition for each attribute. This will form the conceptual framework of the study.

2.4.1 Reflexivity

This concept largely focuses on learning as a central theme. Abdullah and Kim (2020: 770) refer to reflexivity as the three phases of learning, namely in-between leaning, trial and error learning and contingency learning. In a research context, Dhesi (2013) argues that reflexivity includes a hybrid model where the researcher's position is both insider and outsider. Therefore, from a practical perspective, practitioners are research practitioners.

For Goh and Soon (2019:531) reflexivity is the leveraging on the collaborative advantage with diverse stakeholders. The pool of individual actions and contributions to practice or learn. Reflexivity leverages off the collaborative advantage with diverse stakeholders. Developed routines that “transcend the sum of individual actions and capabilities, to practice and learn as a social network group. This group has a common interest, which is enhancement. Knassmüller and Meyer (2013: 91-92) describe reflexivity as the ability of public officials to perform situation-specific tasks and responsibilities within a highly complex environment. Reflexivity allows public administration managers to question and reframe their own positions on a particular issue.

To conclude, reflexivity refers to the ability of looking back at experiences, learning and the reflection of that learning. Working collaboratively and with synergy to reach certain conclusions. Leveraging off individual experiences and looking at situations differently (see 6.5.1 of Chapter 6).

2.4.2 Resilience

Resilience refers to an adaptive capability for dealing with unpredictable public administration challenges and responds effectively to challenges (Bourgon, 2010; Eppel & Rhodes, 2018; Termeer et al., 2015; Termeer et al., 2016). Furthermore, the concept also refers to the ability to respond effectively to challenges (Eppel & Rhodes, 2018), while maintaining the performance of core functions (Rogers, et al., 2001). Responding positively to a challenge and effectively managing change. Adaption and resilience can work together to enable a department to thrive under stressful contexts (Rosenbäck et al., 2023; Termeer et al., 2016; Zimba, 2021). Rogers et al. (2021: 3) describe health system resilience as the “the capacity of the health system actors to deliver the same level of health care services with fewer and/or different resources, which requires making organizational adaptations.”

Further, resilience is made up of both proactive factors, that relate to readiness and reactive factors that can be used when required. It includes dealing with the fundamental uncertainties with flexibility and its relation to public administration

challenges. Therefore, handling occurring and changing circumstances without losing identity and reliability.

To conclude, resilience refers to the adaptive capability to successfully deal with unexpected challenges. Having the capacity to effectively deal with the complex problems and uncertainties through adapting, without losing identity and reliability (see 6.5.2 of Chapter 6).

2.4.3 Responsiveness

Responsiveness refers to the ability to decide and react in a proactive manner. For Termeer, et al. (2016: 15) it refers to public officials' ability to recognise and address the broad spectrum of demands and concerns that continually impact the implantation of policies. This capability encompasses the ability to determine when to exercise restraint and when action is necessary, as well as the capacity to make proactive decisions. Responsiveness is particularly relevant to addressing serious problems, which lack definitive solutions and stopping points.

According to WRR (2013: 27-28), responsiveness is not an isolated trait, but one that exists within a particular time and place. To enhance the responsiveness of public administration managers, efforts should concentrate on encouraging innovation in public administration. Notten (2016: 72) elaborates on this contextual theme by emphasising the need for responsive institutions dealing with the circulation of knowledge, knowledge differentiation and knowledge enrichment to "proactive competency to link to and learn for the future".

To conclude, responsiveness entails the ability to respond appropriately to evolving agendas and shifting public demands. react in a positive, pre-emptive and risk-based manner (see 6.5.3 of Chapter 6).

2.4.4 Reciprocity

Reciprocity focuses on the interconnectedness of public administration mangers with each other and other stakeholders on specific matters (Wessels, 2024: 29). Reciprocity entails the need for a collaborative and multi-disciplinary approach to

deal with complex problems of a changing world of work. Reciprocity has a common basis and understanding. To adequately instil this capability, public administration managers need to be introduced to reciprocal teaching.

In a recent study Klepac, Mowle, Riley and Craike (2023: 13) use the concept 'reciprocal accountability' for referring to 'a justification of local results against local targets set in the context of priorities determined by the centre'. As their study reveals "an overall lack of reference to governance mechanisms that support reciprocal accountability" (Klepac et al., 2023: 13-14), they suggest the creation of a supportive policy environment for place-based approaches "to address complex problems in a specific geographic location and socio- economic determinants of health" (Klepac et al., 2023: 15).

To conclude, the capability of reciprocity refers to a collaborative approach in learning and exchanging knowledge to deal with complex problems (see 6.5.4 of Chapter 6).

2.4.5 Revitalising

In a study on revitalising of professional learning for experienced school principals, O'Neill and Glasson (2019: 890) suggest that revitalisation is "a possible pathway to sustainability" and a "possible circumvention strategy" (2019: 891). This circumvention strategy relates to what Termeer et al. (2016: 15) describe as a "response to stagnations, powerplays or deadlocks of processes". For them, revitalising is the ability to "unblock stagnations and reanimate deadlocked policy processes" (Termeer et al., 2016: 15), through strategies such as the motivation of people and the attending to dysfunctional interactions. The enabling conditions of this capability include an inherent tolerance of disappointment, openness to questioning and interventions skills (Termeer et al., 2016:15).

To conclude, revitalising is the adaption and realignment of a particular issue when stagnation is encountered and thus a mechanism to prevent stagnation (see 6.5.5 of Chapter 6).

2.4.6 Rescaling

The concept ‘rescaling’ closely relates the concept ‘reframe’ in the sense where wicked problems are reframed to make it manageable (Head, 2022: 35). For Termeer et al. (2016: 16) reframing refers to “the ability to address mismatches between the scale of a problem and the scale at which it is governed”. Reading their definition together with what Head (2022: 97) refers to as reframing, it seems that the argument is that rescaling is necessary for finding the most optimal solutions for complex problems, even if those solutions are perceived as less optimal. This capability requires from public officials the ability to tolerate blurred responsibilities and flexible jurisdictions (Termeer et al., 2016: 16).

To conclude, the capability of rescaling or reframing is the ability to adequately deal with mismatches between the scale of poorly defined problems and obtaining a manageable solution to it (see 6.5.6 of Chapter 6).

2.5 Summary and conclusion

The purpose of this chapter was to understand the notion ‘public administration capabilities’ and its value for dealing with the challenges of ill-defined problems. The public administration capabilities identified for this study are reflexivity, resilience, responsiveness, reciprocity, revitalising and rescaling. This chapter provided a brief outline of these capabilities as reported in scholarly literature.

The core value of these capabilities are its use in understanding specific abilities of public officials to respond to complex operational problems by acting, observing and enabling some or other solution. These identified capabilities served as the theoretical lens to interpret the lived experiences of environmental health officials who participated in this study. Chapter 6, section 6.5 expands on how these capabilities may have been used to overcome the challenges posed by the pandemic.

CHAPTER 3: RESEARCH DESIGN, METHODS AND TECHNIQUES

3.1 Introduction

Chapter 1 was used to outline reasons for embarking on this research journey, formulate the research problem and purpose and provide a brief overview of the design adopted for this study. The purpose of this study is to identify, describe and understand public administration capabilities which enabled public officials to overcome challenges posed by the COVID-19 related regulations to their ability to perform the Environmental Health functions of the City of Cape Town during the COVID-19 pandemic. While the research design for achieving this purpose is has been identified as a case study (see 1.7 of Chapter 1), this chapter provides a comprehensive description of how this design was used to achieve this research purpose.

This chapter provides a justification for choosing a case study design for this research, the selection of environmental health officials of the City of Cape Town (as cohort) as a typical case of the phenomenon 'environmental health officials', the identification and sourcing of appropriate data sources, the selection and application of appropriate research methods and techniques, and the research ethics and implications of the study.

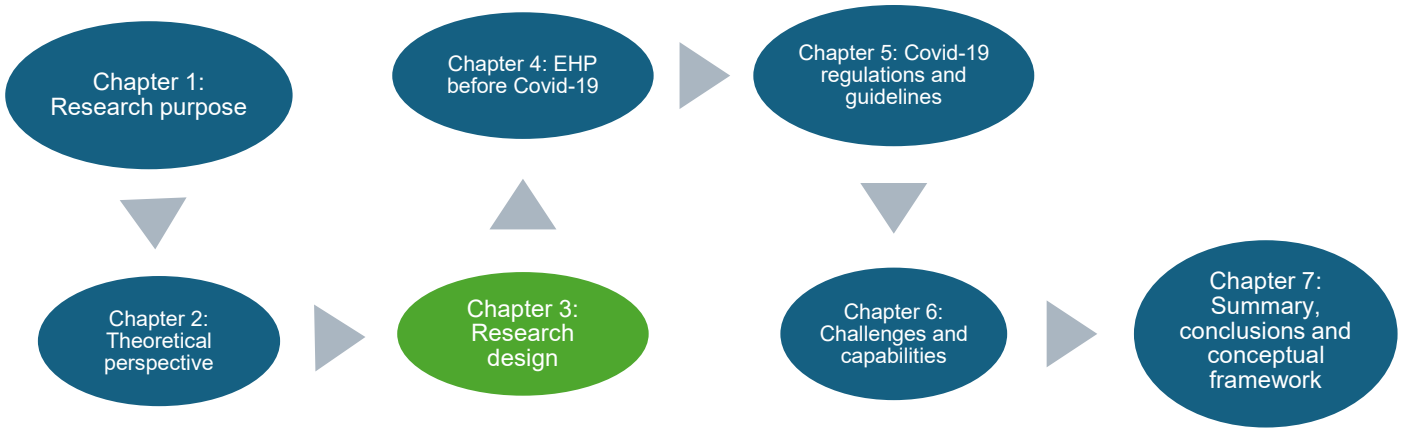


FIGURE 3.1 : CHAPTER MAPPING

(Chapter titles in abbreviated form)

3.2 The case study as an appropriate research design type to achieve the research purpose

As indicated in chapter 1 (see 1.7) the research design is determined by the unit of analysis as well as the nature of information sources. The occupational cohort 'environmental health officials' is identified as the unit of analysis. While it will not be feasible to research the entire occupational cohort world-wide as the purpose of this study is not to give a universal description of characteristics and behaviour of this cohort, but only to obtain a deeper understanding of the behaviour of this cohort in dealing with problems during a pandemic, a case study design is deemed appropriate to research the problem.

This decision is supported by the work of Mouton which states that "a research design is a plan, framework, or blueprint of how you intend conducting the research" (Mouton, 2022: 59). Mouton (2022: 61) identifies two categories of research designs, namely empirical and non-empirical. Empirical design types are aimed at the observation of phenomena in the real world.

The case study design is one of empirical design types as they explore and describe characteristics, orientations, experiences and behaviour of people (Mouton, 2022: 89-42; Wessels & Potgieter, 2021: 9-10). Therefore, the case study design type was selected as it is best suited to address the research problem.

3.2.1 Research problem and purpose statement

As indicated in section 1.3 of chapter 1, the research problem is "which public administration capabilities were displayed by public officials in the City of Cape Town to overcome the challenges posed by the COVID-19 pandemic while performing Environmental Health functions?" The purpose of this study is to understand how these six capabilities may enable environmental health officials to meet challenges posed by the COVID-19 pandemic. The emphasis is thus on understanding the behaviour of a specific group of people in challenging circumstances. As outlined in sections 1.3 and 1.4 of this dissertation, the research

problem and research purpose were unpacked in distinct sub-questions and research objectives, which are provided in table 3.1 below.

TABLE 3.1: RESEARCH PROBLEM, PURPOSE, SUB-QUESTIONS AND OBJECTIVES

Research problem and sub-questions	Research purpose and objectives
1. What is 'public administration capabilities' within the context of public administration challenges?	1. To obtain a theoretical perspective on 'public administration capabilities' through a systematised literature review.
2. What are characteristics of environmental health functions of the City of Cape Town at the time of the outbreak of the COVID-19 pandemic?	2. To describe characteristics of Environmental Health functions performed by officials of the City of Cape Town before the COVID-19 pandemic.
3. What is the nature and scope of the COVID-19 regulations and guidelines applicable to the Environmental Health Department?	3. To describe the nature and scope of COVID-19 regulations applicable to the Environmental Health Department.
4. In what ways did COVID-19 regulations make it difficult for environmental health officials in the City of Cape Town to carry out their duties?	4. To identify challenges posed by COVID-19 regulations to the capability of Environmental Health officials in the City of Cape Town to perform their functions.
5. How did public administration capabilities enable environmental health officials to address COVID-19 related challenges?	5. To demonstrate how public administration capabilities enabled environmental health officials to address the COVID-19 related challenges while performing their functions during the COVID-19 pandemic.

3.3.2 The study phenomenon

The implication of the research problem and purpose was that the unit of analysis or phenomenon of this study is a specific group of human beings, namely environmental health officials, who were employed within a specific time frame (2020-2022) during the COVID-19 pandemic. The main focus of the research is understanding their behaviour, which means their ability to deal with challenges during the COVID-19 pandemic while performing their normal functions at the same time.

A set of six recognised public administration capabilities for dealing with problems were identified in a review of literature as reported in Chapter 2. As indicated in Chapter 1, this study is interested in obtaining a deeper understanding of their behaviour, namely dealing with problems during the COVID-19 pandemic. The literature confirms that a case study design is appropriate for "obtaining a deeper understanding of a public administration phenomenon" (Wessels & Zongozzi, 2024: 281).

The reason for selecting this design is that it provides an in-depth description of an instance or a phenomenon for a deepened understanding of that instance and the phenomenon. While the phenomenon of this study is environmental health functionaries in general, the instance (case) is environmental health officials employed by the City of Cape Town during the COVID-19 pandemic. This case is discussed in the next section.

3.3 Environmental Health Officials in the City of Cape Town as a typical case

As indicated above, environmental health officials employed by the City of Cape Town during the COVID-19 pandemic were selected as a typical or representative case for studying their display of public administration capabilities while dealing with challenges or problems.

A typical or representative case ‘captures the circumstances and conditions of an everyday or commonplace situation’ (Yin, 2009: 48) which are typical of the phenomenon.

3.3.1 The case and unit of analysis

Environmental Health officials employed by the City of Cape Town during the COVID-19 pandemic constituted the case (the instance of the broader phenomenon) and thus the unit of analysis of this study. Experiences of the said case were confined to a period starting from the 15th of March 2020 and ending on the 4th of April 2022. This is the exact duration of the COVID-19 pandemic period in South Africa.

This group of officials served as a typical case for obtaining a deepened understanding of public officials’ capabilities to deal with problems. The case is a rich source of information because they worked on the frontline to provide an essential service during all stages of the pandemic. The study aimed to analyse behavioural attributes demonstrated by officials in this. This direct involvement of human participants was supplemented by the analysis of official documents as textual data.

3.3.2 Point of focus

The point of focus of this study was the behaviour of this group of officials in performing their environmental health functions during the COVID-19 pandemic. This focus included the nature of their functions (sub-questions 2 and 3), and the public administration capabilities required from them to perform their functions during this challenging period (sub-question four). To understand their behaviour and capabilities (sub-question five) within this specific context, it is also necessary to obtain information about their beliefs, orientations and ways of thinking (sub-question five) during the COVID-19 period.

3.4 Appropriate data sources

To fully understand the behaviour of environmental health officials of the City of Cape Town during the COVID-19 pandemic, requires meeting those research objectives which are set in chapter one. Each of them requires a distinct set of information or sources of data. The data sources, also referred to as units of observation, consisted of primary data and secondary textual data. The primary data sources consisted of human participants (environmental health officials) and textual data consisted of documents such as statutes, internal policies, disaster risk management regulations, National and Provincial Environmental Health guidelines during COVID-19, World Health Organization COVID-19 guidelines, regulations, directives and procedures. These documents were interrogated to understand aspects which influenced the environmental health practitioner's way of working during the COVID-19 pandemic.

Interviews with human participants were used to obtain direct information about their lived experiences in performing their functions during the pandemic. A two-dimensional interview approach was followed, with focus groups discussions with environmental health operational officials and one on one interviews with management.

The data sources (units of observation) used to satisfy research objectives of this study, are summarised in table 3.2 below.

TABLE 3.2: DATA SOURCES NECESSARY FOR MEETING THE RESEARCH OBJECTIVES OF THIS STUDY

Research objective	Unit of analysis	Points of focus	Unit of observation (data sources)
1. To obtain a theoretical perspective on 'public administration capabilities' through a systematic literature review (**Chapter 2**)	The concept 'public administration capabilities'	Meaning	Scholarly literature
2. To describe characteristics of Environmental Health functions performed by officials of the City of Cape Town before the	Environmental health functions of the City of Cape Town before the	Mandate	**Human participants**: managers; environmental health officials **Primary texts**: statutes, internal policies, disaster risk management regulations, national and provincial

Research objective	Unit of analysis	Points of focus	Unit of observation (data sources)
COVID-19 pandemic (**Chapter 4**)	COVID-19 pandemic		environmental health guidelines during COVID-19, World Health Organization COVID-19 guidelines, regulations and procedures **Secondary texts**: collated reports
3. To describe the nature and scope of COVID-19 regulations applicable to the Environmental Health Department (**Chapter 5**)	COVID-19 regulatory prescriptions	Mandate	**Human participants**: managers; environmental health officials **Primary texts**: disaster risk management regulations; national and provincial environmental health guidelines; World Health Organization COVID-19 guidelines; procedures **Secondary texts**: collated reports; official records
4. To identify challenges posed by the COVID-19 regulations to the capability of Environmental Health officials in the City of Cape Town to perform their functions and how they overcame those challenges (**Chapter 6**)	Environmental Health Practitioners within the City of Cape Town	Challenges and capabilities	**Human participants** (managers and environmental health practitioners)
5. To demonstrate how public administration capabilities enabled environmental health officials to address the COVID-19 related challenges while performing their functions during the COVID-19 pandemic (**Chapter 6**)	Research findings; concepts	Meaning	Findings of chapters two, four, five and six

3.5 Research methods and techniques

While section 3.4 above provides an outline of the different categories of data sources necessary for answering the research sub-questions and meeting the research objectives, this section provides information on methods and techniques

used in finding these sources and extracting needed information from them. Methods and techniques used to find, extract and interpret information from human participants, primary texts and secondary texts respectively, are discussed next.

3.5.1 Involvement of human participants

The human participants for this study were selected according to the protocol as discussed below.

Study population: The study population, as an indication of "that aggregation of elements from which the sample is actually selected" (Babbie & Mouton, 2001: 174), consisted of the 207 officials of the City of Cape Town employed during the period 2020-2022. The group consisted of both operational staff who work in the field at the coalface with the community and management who function at an operational, strategic and supportive level. These officials are responsible for delivering the Environmental Health Service within the Metro. The minimum formal qualification held by each official is a National Diploma in Public Health or Environmental Health. Active Health Professions Council of South Africa (HPCSA) registration, category 'Independent practice' is a mandatory requirement to practice Environmental Health within South Africa.

Sampling unit: The sampling unit for this study, namely "that element or set of elements considered for selection in some stage of sampling" (Babbie & Mouton, 2001: 174), consisted of three elements namely, Environmental Health Practitioners, Senior Environmental Health Practitioners and Managers. Within the operational staffing group two elements were considered, namely Environmental Health Practitioners and Senior Environmental Health Practitioners. The significant dissimilarity between the two ranks are that the SEHP's has in addition to the EHP's a portfolio management, coaching, mentoring, training and supervision functions. Within the strategic and supportive staffing group, managers will form the third element. According to the organisational structure, management is positioned within two broad staffing groups, namely: area-based service delivery and strategic support.

Sampling frame: The sampling frame, namely “the actual list of sampling units from which the sample, or some stage of the sample, is selected” (Babbie & Mouton, 2001: 179), was the actual list of Environmental Health Officials from which the sample (human participants) was drawn. A predetermined list of participants will be established from which the sample will be drawn. Ideally the sample frame will match the sample drawn.

Considerations when selecting the sample frame were, Environmental Health staff employed during the COVID-19 pandemic period, years of service within the City of Cape Town (balance between the experienced and inexperienced), age, sex and rank (see table 3.5).

Furthermore, the sampling frame was categorised into two groups namely, Environmental Health Practitioners and Senior Environmental Health Practitioners (Group A) and Management Officials linked to Environmental Health (Group B). Stratified sampling method was used to obtain category specific understanding of lived experiences of participants (Babbie & Mouton, 2002: 191-192).

Engagement with participants was executed by means of two techniques, namely, semi-structured interviews and structured interviews. The semi-structured interview method was selected, as it is regarded as the best method to interact with human participants, for participants to leverage off each other’s contributions and achieve a deeper holistic understanding of the subject matter. Structured interviews allowed for the gathering of participants unbiased view on their experiences. Saturation was reached when no new information and insights emerged, and data started to recur indicating that additional data collection is unnecessary (Hennink & Kaiser, 2022: 2).

Group A: Environmental Health Practitioners and Senior Environmental Health Practitioners

The sample population consists of 175 practitioners. The group included officials in two ranks, that is Environmental Health Practitioners, population 116 and Senior Environmental Health Practitioners population 59.

A sample frame was selected from a register of all the Environmental Health Officials who were employed during the period 2020 to 2022. Thirty (30) Environmental Health Practitioners and 10 Senior Environmental Health Practitioners were selected. The basis of the sample size was to obtain information from representative sample size from the total population, therefore a minimum of 15% of the total population of officials was targeted. The average age of this group ranges between 23 – 65 years. Participants were randomly selected with the aim to have representation from all operational Areas.

Sample size breakdown:

Participants in sample Group A consisted of approximately three Senior EHP's and seven EHP's per focus group (4 service Areas x 10 participants per Area = 40 participants in total). 30 EHP's out of 116 and 10 SEHP's out of 59 SEHP's. The total sample of Group A participants were 40. The sample percentage was 23% which exceeded the minimum target of 15%.

Focus group discussions were held with Environmental Health Practitioners servicing various areas within the Metro. Emphasis was placed on constructively extrapolating participant's views on what capabilities were required to effectively perform environmental health functions during the COVID-19 pandemic. An explanatory and descriptive questioning approach was used. A semi structured interview method was employed by using an interview framework (Table 3.3).

TABLE 3.3: INTERVIEW FRAMEWORK FOR ENVIRONMENTAL HEALTH PRACTITIONERS AND SENIOR ENVIRONMENTAL HEALTH PRACTITIONERS (GROUP A)

Can you tell me about your experiences of the functions within your Environmental Health Office during the period before March 2020.
Can you tell me about your experience of challenges posed by COVID-19 on the ability of your Environmental Health Office to perform its functions during the pandemic?
Can you tell me how you and your colleagues responded to specific challenges during the pandemic?
Can you tell me what lessons were learned from the COVID-19 experience by you and/or the Environmental Health Office?

Can you remember examples of you and/or your colleagues –

- Had to reflect on the value of previous experiences for this challenge?
- Had to adapt existing practices to deal with a challenge?
- Were forced be responsive (react in a positive, pre-emptive and risk-based manner) to a new challenge?
- Were you forced to collaborate with different stakeholders to deal with challenges?
- Were you forced to deal with different perspectives on problems and solutions?

Group B: Management Officials linked to Environmental Health

The sample population of the management officials consisted of 32 officials. Fourteen (14) officials were selected, forming the sampling frame. The average age of this group ranges between 38 – 65 years. It was envisaged that, if a minimum of 30% of the study population is individually interviewed it would result representative outcomes and adequately reach a level of saturation.

Sample size breakdown:

Fourteen (14) out of 32 officials were individually interviewed as the sample frame. Semi-structured interviews were held with Management officials, aiming to establish ways of thinking, basis of decision making and gaining their views on capabilities that were observed from staff during the COVID-19 pandemic.

The basis of selection was the level of involvement in the COVID-19 pandemic, expertise and experience. The total sample of Group B participants was 14. The sample percentage was 44% which exceeded the minimum target of 30%.

The following interviewee participants were selected:

HMT Members;

Specialised Health Unit Managers;

Environmental Health Heads (including the Portfolio holder responsible for communicable diseases;

Principal Environmental Health Practitioners (operational managers);

Fourteen (14) participants in total. Semi structured interview method was employed by using an interview framework (Table 3.4).

TABLE 3.4: INTERVIEW FRAMEWORK FOR MANAGEMENT OFFICIALS LINKED TO ENVIRONMENTAL HEALTH (GROUP B)

Can you tell me about your experiences of the functions within the Environmental Health Department during the period before March 2020.
Can you tell me about your experience of challenges posed by COVID-19 on the ability of your Environmental Health Department to perform its functions during the pandemic?
Can you tell me how you and your colleagues responded to specific challenges during the pandemic?
Can you tell me about your experience with decision making during the pandemic?
Can you tell me what lessons were learned from the COVID-19 experience by you and/or the Environmental Health Office? Can you remember examples of you and/or your colleagues – • Had to reflect on the value of previous experiences for this challenge? • Had to adapt existing practices to deal with a challenge? • Were forced be responsive (react in a positive, pre-emptive and risk-based manner) to a new challenge? • Were you forced to collaborate with different stakeholders to deal with challenges? • Were you forced to deal with different perspectives on problems and solutions?

A total sample size of minimum 20% of the population was targeted. This ensured that a representative number of participants are engaged with to draw accurate conclusions and reach saturation. 26% of the study population was reached.

TABLE 3.5: SUMMARY OF THE ACTUAL SAMPLE SIZE

	Group A				**Group B**		**Study Population**	
	EHP's		*SEHP's*		*Management*			
	N	%	N	%	N	%	N	%
Study population	116	100%	59	100%	32	100%	207	100%
Sample Frame	30		10		14			
Area North	2		4					
Area South	5		2					
Area East	8		4					

Area Central	12		3					
HMT					4			
Specialised Health					2			
Heads: Environmental Health					2			
Principal Environmental Health Practitioners					6			
Actual Sample	**27**		**13**		**14**			

3.5.2 Analysis of primary texts

The criteria for the selection of primary textual data were documents that described characteristics of Environmental Health functions performed by officials of the City of Cape Town and documents that prescribed the way of work during the COVID-19 pandemic the way of work of EHP's during the COVID-19 period.

The main source of these documents was statutes, regulations internal policies, endures, National Norms and Standards for Environmental Health, National Environmental Health guidelines during COVID-19, World Health Organization COVID-19 guidelines, regulations and guidelines published during 2000 and 2002 found in the public domain. When reading the documents a concerted effort was placed on establishing usual business operations and duties of environmental health officials, with the 9 mandated functions of environmental health as a basis.

Furthermore, documents were scrutinised seeking key mandatory work expectations placed on environmental health officials in the response to COVID-19. These include, but not limited to, enforcement action, health promotion, contact tracing, specific requirements relating to funeral parlours, gatherings, reporting and decisions taken in meetings. Key points were highlighted and expanded on.

3.5.3 Analysis of secondary texts

The criteria for the selection of secondary textual data were documents that outlined the usual way of work and documents created during the COVID-19 period. The

source of these documents will predominately be found externally in the public domain and internally within the City of Cape Town. These documents were official Acts, regulations, directives, guidelines and collated reports. Documents were read seeking key focus areas and words that determines and would impact operational requirements, objectives, areas of focus, strategic goals and methods of monitoring, targets and reporting.

3.5.4 Explanation building and “Double hermeneutic” techniques application

Explanation building is a technique commonly used in case study research. It is a unique type of pattern matching which compares and connects theoretical data with empirical data. Ultimately building a refined explanation about the case (Zongozzi & Wessels, 2016: 223).

Qualitative research practices share a common epistemological footing, whereby the researchers endeavour to reduce the gap between participants and themselves (Raheim, et al., 2016:1-2). Double hermeneutics are formed by interpretive paradigms and facilitates this.

As explained by Thani (2018: 26) a “double hermeneutic” technique is where firstly, the researcher endeavours to interpret and understand the participants experiences and secondly, the participants to interpret and understand their own firsthand insights. Researchers remain inherently connected to the experiences of participants.

3.6 Research ethics considerations

Without ethics, we have nothing. Ethical considerations form the cornerstone of this study due to the nature of data sources and collection, which is both from textual data (content analysis) and human subjects (interviews). Further, ethics rests on integrity, which is important when seeking scientific knowledge (Wessels & Visagie, 2017: 158). Prevention or mitigation of the risk of harming human participants forms the mainstay of research ethics review in universities (Wessels & Visagie, 2019: 74).

To achieve the desired level of safety for participants, three key principles were upheld as per The Belmont Report (Visagie, Beyers, Wessels, 2019: 166). The key principles are as follows:

a. Autonomy

   "Respecting the autonomy of rights of individuals and/or groups, not harming people, protecting individual and collective interests, taking account of people's needs, dealing with people justly, for example, not exploiting them, treating equitably the various people encountered during the course of data collection, and respecting privacy and confidentiality" (Wessels and Visagie 2017: 158). It is therefore a universal standard for researchers to obtain informed consent from human participants prior to undertaking research (see 6.5.3 of Chapter 6) to ensure them of the confidentiality of their participation in their study (Wessels and Visagie 2017: 159).

   Thus, indicating participants' willingness to participate in the study. In addition, the informed consent form (See Annexure C) was explained during the introduction to each interview session to ensure participants understood the research study and to again confirm willingness to participate.

   The interviews were conducted in a manner that showed the upmost respect for the participants. Participants had an option to opt out of the research at any given point during the process. Therefore, participants had complete freedom to decide whether to continue or discontinue interviews at any given time.

b. Beneficence

   This principle rests on its meaning and that is the duty to do good (Nortjé, et al., 2019: 232, chapter 16). The benefits of the research should outweigh the risks associated with it, alluding to a "favourable risk-benefit ratio" (Wessels and Visagie 2017: 160). The contributions should be meaningful, improve the quality of life of participants and bring novel knowledge to the table on a specific subject (Nortjé, et al., 2019: 129).

The research will be mutually beneficial for the researcher and participants. The researcher envisaged to obtain answers to research question and sub-questions. The participants will receive the research outcomes and recommendations.

Furthermore, this will empower research participants to enhance their evidence-based decision-making capabilities when dealing with comparable problems.

c. Justice

As Rawls 2003 indicates, social justice equates to distributive justice, with equity decisively related. "J*ustice* requires that participants in the research studies are not targeted based on their racial, social and / or economic disadvantages and that equity is maintained in the selection of the research participants" (Nortjé et al., 2019: 209).

Therefore, it implies that fair procedures must be followed in the selection of human participants. Justice is achieved by treating all people with distinct variance with reaching equal dignity as the outcome (Nortjé et al., 2019: 240). "This principle refers specifically to the 'ways in which participants are treated' in the research process" (Wessels & Visagie, 2017: 161).

Further, the research was selected for a specific reason and time. The period of evaluation is the period between 2020 and 2022. The specific target group is Environmental Health officials employed during that period. All participants were provided with a naïve sketch document that contained interview questions. Participants had the opportunity to reflect on interview questions prior to interviews taking place to ensure that participants were comfortable and prepared during focus group and individual interviews. Interviews were set up at times that were convenient for participants and were kept in the allotted time. All participant responses were coded to maintain anonymity.

All recordings and transcriptions (data) are be kept in a secure, password protected computer with the researcher having sole access. Back-up copies are securely

stored in an external hard drive that is kept in a locked drawer in the researchers' home office. Data will be kept for 15 years after completion of the study and thereafter destroyed. The study was classified as a low-risk study due to the insignificant harm to research participants.

3.6.1 Application for research ethics clearance

The study was conducted after receiving ethical clearance from the College of Economic and Management Sciences ERC Public Administration and Management (see Annex A). All ethical considerations were upheld by the researcher for the duration of the study.

3.6.2 Application for research permission

An application for Approval for City Health's own staff-initiated research was made to the City Health Department, City of Cape Town to conduct this research. After ethical clearance was obtained as stated above, the research approval letter was obtained (see Annex B).

3.7 Conclusion

This chapter expanded on the research problem and research purpose. It discussed how the research was conducted; methods used and point of focus. A case study proved to be an appropriate design to adequately address the research question and sub-questions. The unit of analysis was the environmental health officials, with the point of focus being how these officials conducted themselves during a specific point in time (March 2000 – April 2022) to meet the challenges of Covid-19.

A hybrid data approach was adopted which sought answers through primary and secondary data sources. Research methods and techniques that were employed are content analysis and interviews. The interview questionnaire consisted of 4 questions for Group A participants and 5 questions for Group B participants. A sample frame breakdown was outlined which aimed to reach a representative

number of the study pollution. Ethical considerations were employed in line with recommendations made in “The Belmont Report.” Applications for ethical clearance and organisational research approval was granted. Ethical clearance was obtained from the College of Economic and Management Sciences ERC Public Administration and Management.

CHAPTER 4: ENVIRONMENTAL HEALTH FUNCTIONS PERFORMED BEFORE THE COVID-19 OUTBREAK

4.1 Introduction

As described in chapters 1 and 3, this study aims to identify public administration capabilities required by EHP's in the City of Cape Town to address challenges posed by the COVID-19 pandemic. As it is assumed that the COVID-19 pandemic created unprecedented challenges for these officials in the execution of their duties, the objective of this chapter is to describe characteristics of the environmental health functions performed by officials in the City of Cape Town prior to the COVID-19 pandemic. To meet this objective, two sources were used to collect data, namely documents and human participants.

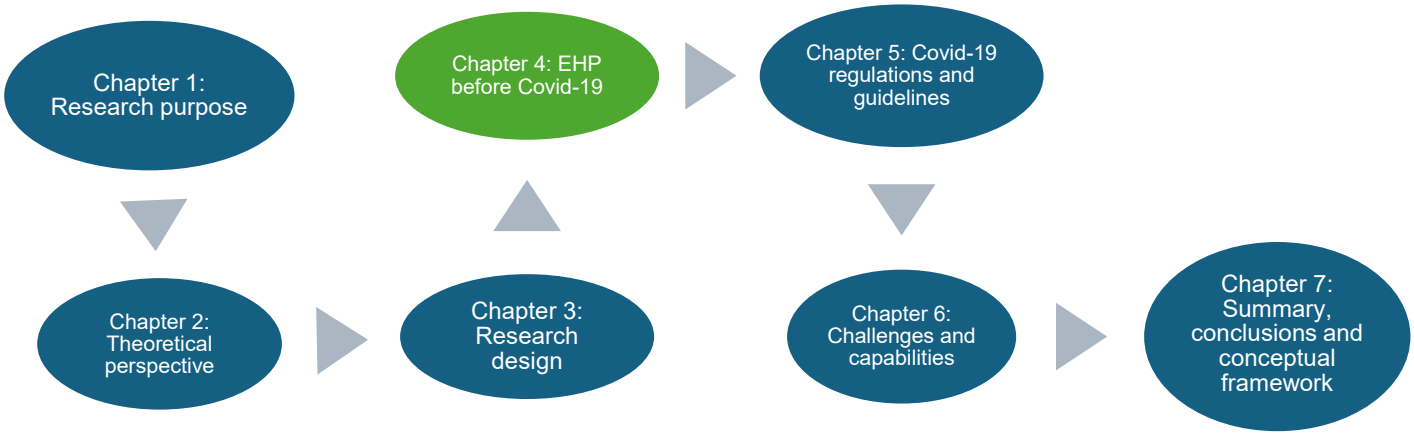


FIGURE 4.1: CHAPTER MAPPING

(Chapter titles in abbreviated form)

4.2 Overview

A content analysis of relevant constitutional, statutory and official documents, as well as an exploration of lived experiences of environmental health officials in the City of Cape Town during the selected period. Insights obtained from this analysis will form a foundation for subsequent chapters.

The Environmental Health Department's mandated functions as per the National Health Act (Act 61 of 2023) and auxiliary tasks delegated to it are a focal point for the analysis. The aim of this chapter is to define day to day functions of environmental health officials in the City of Cape Town and get a sense of the overall climate within the department before the pandemic.

4.3 Constitutional and statutory basis of environmental health functions

The purpose of this section is to provide an outline of the constitutional and statutory basis of environmental health functions. This description is informed by an analysis of the Constitution of the Republic of South Africa (RSA, 1996) and relevant national, provincial and local legislation.

4.3.1 The constitutional framework

The Constitution of the Republic of South Africa (RSA, 1996) provides the foundation for environmental health functions performed by municipalities. Section 24 of the Constitution (RSA, 1996) proclaims that everyone in South Africa has the right –

> *(a) to an environment that is not harmful to their health or wellbeing; and*
>
> *(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures…*

Furthermore, the Constitution (RSA, 1996: Section 152(1)(d)) prescribes that one of the main functions of local government is "to promote a safe and healthy environment". The Constitution in this regard allocates specific powers to local government (RSA, 1996: Section 156 & Schedule 4 Part A).

4.3.2 Common pieces of legislation enforced by Environmental Health Practitioners

The discussion below highlights legislation that was enacted to ensure these environmental rights are protected;

- National Health Act 61 of 2003.
- Local Government: Municipal Structures Act 117 of 1998.
- Health Professions Act 56 of 1974.
- The National Health Act (RSA, 2003) and the Local Government: Municipal Structures Act, Act 117 of 1998 (RSA, 1998) outlines municipal health services as a set of Environmental Health Services that is to be rendered by District and Local Municipalities in South Africa (Balfour-Kaipa, 2006: 1-5).

The National Norms and Standards for Environmental Health (Department of Health, 2013) prescribed a standardised, national framework that created a benchmark for the delivery of quality environmental health services in South Africa.

Based on the preventative nature of Environmental Health, the standards' primary focus is on disease prevention and the safeguarding public health. The standards are based on South African health and municipal legislation and align with international best practices. Although the National Norms and Standards for Environmental Health are not legally enforceable, they offer critical guidance needed to ensure consistent and effective environmental health services nationwide (Notice 943 of 2013).

EHP's use various other pieces of legislation in their practice, which include but not limited to the following:

- Foodstuffs Cosmetics and Disinfected Act 54 of 1972 and about 40 specific regulations
- Water Act 36 of 1988
- Draft City of Cape Town Animal Keeping By-law, 2021
- Criminal Procedures Act 51 of 1997
- Businesses Act 71 of 1991
- National Building Regulations and Building Standards Act 103 of 1977
- Tobacco Products Control Act 83 of 1993
- Regulations relating to the Management of Human Remains, 363 of 2013

- City of Cape Town Environmental Health By-Law, 13333 in Western Cape Provincial Gazette 6041 of 30 June 2003

The City of Cape Town Environmental Health By-Law (13333 30 June 2003) outlines the responsibility of EHP's in enforcing this by-law within the geographical area of the City of Cape Town. This includes sections that prescribe enforcement of laws on prevention of health nuisances, medical waste management and ownership of animals among others.

4.3.3 Environmental health functions

Nine environmental health functions of the City of Cape Town are outlined in the 'Scope of practice regulations' of 2009 (Regulation 698, 26 June 2009) (Department of Health, 2009), and will be discussed in the following section.

(a) Water quality monitoring

Monitoring water quality and ensuring accessibility to safe potable water not only for domestic usage, but also for recreational, industrial, food production and any other human or animal use. Provide inputs on the water system planning and design and through surveillance to ensure a safe water supply.

Promote for the safe use of water and disposal of wastewater. Monitoring safe and effective wastewater treatment and water pollution control as well as collecting water samples in the field (Department of Health, 2009: Section 2).

(b) Food control [1]

Ensuring that acceptable microbiological and chemical standards are maintained throughout all phases of the food supply chain. Inspections of food production, distribution and consumption sites. The monitoring of informal trading and inspection of any nuisances originating from food premises. Food legislation and Codex Alimentarius (collection of standards, guidelines and codes of practice for the food industry) enforcement. Application of various food quality monitoring programmes. Promotion of safe transportation, handling, storage and preparation

[1] Food manufacturing premises falls under the ambit of the Specialized Health: Food Control Unit.

of foodstuffs used in primary school nutrition programmes, prisons, health establishments and airports. Promotion of safe handling of meat, meat products, milk and milk products (Department of Health, 2009: Section 2: 5)

(c) Waste management and general hygiene monitoring

Ensuring proper refuse disposal and management of liquid waste (for example sewage and industrial effluents. Ensuring proper storage and disposal of medical and hazardous waste. Sampling and analysis of waste or waste products. Inspections and investigation of any waste steam related matters. Advocating for sanitation. Controlling and handling of diseased animal tissue.

Ensuring safe usage of treated sewage. Audits of waste management systems and ensuring a 'cradle-to-grave' approach (Department of Health, 2009: Section 2: 5-6)

(d) Health surveillance of premises

Conducting environmental health impact assessments. Assessing aspects such as ventilation, indoor air quality, lighting, moisture proofing, thermal quality, structural safety and floor space. Assessing overcrowding, dirty or any unsatisfactory health conditions on residential, commercial and industrial occupied premises.

Monitoring all buildings and all other permanent or temporary physical structures. Ensuring urban and rural land-use planning and practices. Prevention and abatement of conditions likely to constitute to a health hazard on any premises. Ensuring the health safety of public transport facilities. Practical mitigation of any environmental health risk (Department of Health, 2009: Section 4: 6).

(e) Surveillance and prevention of communicable diseases

Promoting health and hygiene. Collecting, analysing and disseminating epidemiological data and information. Using the Participatory Hygiene and Sanitation Transformation (PHAST) training. Conducting epidemiological surveillance of diseases. Establishing an effective environmental health surveillance and information system. Developing environmental health measures, including protocols, with reference to epidemics, emergencies, diseases and migrations of populations (Department of Health, 2009: Section 4: 7-8).

(f) Vector control

Vector identification and control. Removing or remedying conditions resulting in or favouring the prevalence of pests. Ensuring the residual spraying of premises and precincts occurs. Identification of zoonotic diseases and vector-borne diseases. Surveying imported cargo and livestock for vectors. Undertaking serological testing of rodents, dogs and other pets or animals (Department of Health, 2009: Section 4: 7-8).

(g) Environmental pollution control [2]

Ensuring hygienic working, living and recreational environments. Identifying polluting agents and sources of water, air and soil pollution. Conducting environmental health impact assessments of development projects and policies. Identifying environmental health hazards and conducting risk assessments. Preventing accidents, for example due to paraffin usage.

Approving environmental health impact assessment reports and commenting on environmental impact assessment applications. Ensuring clean and safe air externally (ambient and point sources) through emission inventory monitoring, modelling and toxicological reports, reviews and complaint investigations. Controlling and preventing vibration and noise pollution. Preventing and controlling soil pollution that is detrimental to human, animal or plant life. Ensuring compliance with the provisions of the Occupational Health and Safety Act, 1993 (RSA, 1993), and its related regulations. Ensuring the registration, permitting, monitoring and auditing of all industries. Monitoring management of infrastructure integrity, including management of the infrastructure integrity of pipelines and tanks. Ensuring, collaboratively with other role players, a readiness for abnormal operating conditions and disasters. Developing sustainable indicators appropriate for monitoring the effectiveness of environmental management systems of industries. Assessing the extent of noise pollution and its effects on human health by facilitating

[2] Industrial premises falls under the ambit of the Specialized Health: Air and Noise Unit.

noise control measures and measuring ambient sound levels and noise levels (Department of Health, 2009: Section 7: 8-10).

(h) Disposal of the dead

Controlling, restricting or prohibiting the business of an undertaker or embalmer, mortuaries and other places or facilities for the storage of dead bodies. Monitoring practices at cemeteries, crematoria and other facilities used for the disposal of dead bodies. Managing, controlling and monitoring exhumations and reburials or the disposal of human remains (Department of Health, 2009: Section 8: 10).

(I) Chemical safety

Facilitating advice, education and training on pesticides and/or chemical safety (R698, 9: 10).

Above environmental health functions exclude port health services, control of hazardous substances and malaria control, which are not local government functions and have become provincial functions (Agenbag & Balfour-Kaipa, 2008: 151).

4.3 Lived experiences of environmental health officials

This section reports on the response of the participants on the question “Can you tell me about your experiences of the functions within the Environmental Health Department during the period before March 2020?” Participants responded to these questions through the naïve sketch form sent to them before the interview as well as during individual or focus group interviews.

It was anticipated that the two groups (Managers and operational staff) participants would have similar views on this question. After analysing the data, it was in line with what was predicted. Many participants elaborated on how uncomplicated Environmental Heath work was and highlighted core functions of Environmental Health. Participants’ viewed experiences of the performance of Environmental Health functions before the start of the COVID-19 pandemic as normal routine work according to their legislative mandate.

An analysis of naïve sketches and interview transcriptions revealed several themes based on their lived experience in performing functions before the outbreak of the pandemic. These themes are structured as follows: working in institutional silos; participants' experience of being in control of their work situation; an outline of the nature of the functions.

4.3.1 Working in institutional silos

Although housed within the same Department, before COVID-19, Environmental Health and Primary Healthcare sections worked isolation to a certain degree. On a broader scale, participants indicated that other departments failed to recognise the importance of Environmental Health within the Public Health. Even environmental health officials did not recognise the importance of this function.

This is depicted in the following quotes:

- "I remember that before that we were just EH on its side and Primary Health was on the side and **the two very rarely used to, you know come together**." (EHP17)[3]
- "I don't think the **importance of environmental health was highlighted** by many of the departments." (EHP22)

4.3.2 Participants' experience of being in control of their work situation

Participants reported that the Environmental Health Service was rendered according to traditional practices prior to COVID-19. They felt that they were in control of their work and the work was perceived as routine, it involved very little physical and mental stress. Operational officials were able to engage with their clients unrestricted. They were able to meet service delivery targets on all indicators. According to participants it was "Business as usual", this is a common theme that emerged to depict their work climate during the period before March 2020.

[3] The code refers to a specific Environmental Health Practitioner participating in a focus group discussion.

This is depicted in the following quotes:

- "It was "**Business as usual.**" (EHP02)
- "I had job satisfaction and could apply time management. **I was able to meet deadlines and targets and rendered a quality service to the community.** I was looking forward to being at work and serving the community. I was able to work under pressure, and it did not have any mental strain" (NS - B - EHP)[4]
- "Prior to March 2020, I think everything was **pretty normal**. It's like we are now. We were doing our functions and basically just doing our jobs and getting on with it." (EHP12)
- "It was that there was **no restrictions in doing our work**" (EHP08).
- "**Easier to conduct inspections** without clients being apprehensive. Collaboration of operations with other stakeholders. Face to face trainings and meetings. Being able to **physically attend** notifiable diseases investigations." (EHP 32)
- "The work was fine and **not much pressure or strain** in the work was experienced." (MGR04)[5]
- "Our department **functioned normal**, doing routine inspections, area monitoring as well as projects without any disruptions. So, nothing stood out in that period it was business as usually allowing us to reach our targets and engage communities effectively." (NS - F - EHP)
- "We could focus on a **normal daily task** which included food samples. Interventions at the informal settlements, as well as schools." (EHP05)
- "**Easy to do complaints (investigations)** and able to **work with other stakeholders**." (EHP 33)
- "Work was conducted under **normal conditions** and these conditions were **not rigorous with minimal pressure**." (EHP 10)
- "All **normal functions** done by EHP." (NS - L - EHP)

[4] This code refers to a naïve sketch completed by an EHP research participant.
[5] This code refers to a specific Environmental Health Manager interviewed for this study.

4.3.3 Participants experience their functions as being clearly outlined

Participant experiences were further articulated by means of Environmental Health Services as outlined in the legislation. Mandated functions for Environmental Health are core to their scope of work. There was a clear consensus on their functions as outlined in the relevant legislation and guidelines.

This is depicted in the following quotes:

- "Work was done as per expectations within **Norms and Standards for Environmental Health**" had the PDR, and we did everything according to the **PDR**." (MGR06)
- "The period before was **very straight forward**. We k**new exactly what was inspected from us**, in terms of PDR targets and municipal functions." (NS - K - EHP)
- "Prior to March 2020, environmental health functions as per **the scope of profession** were carried out accordingly and EHPs were able to ensure health surveillance and diseases control and food premises and ECDs monitoring." (EHP25)
- "All your food, all the **normal baseline indicators** like your food premises, medical places, education places, places of care, those kind of places you do, you do your normal inspections of complaints, notifiable diseases, building plans, business licences your normal day-to-day run of work of an EHOP was happening." (MGR13)
- "Funeral parlour inspections, food premises inspections, health promotion, community projects. By law infringements, food sampling, **all normal functions** done by EHP's." (EHP15)
- "Business as usual by conducting of routine inspections in terms of scope of practice, **going to clients freely** and not exercising any additional protective clothing measures." (MGR10)
- "A lot of time was spent doing **food premises inspections** [according to base line indicators] before COVID-19." (EHP24)

- “So, it was pretty much **standard work** relating to environmental health.” (MGR06)

4.4 Conclusion

This chapter outlined the constitutional and legislative foundation of Environmental Health as a profession, specifically within the context of South Africa and the City of Cape Town. The National Health Act and Municipal Structures Act prescribe the role and functions of Environmental Health Services. Apart from other pieces of legislation, The City of Cape Town Environmental Health By-Law is enforceable within the boundaries of the City of Cape Town. Norms and Standards for Environmental Health provide guidance on how to operationalise the service. Lived Experiences of participants in similar roles in the main indicate that Environmental Health Services were rendered as expected with minimum additional effort before the COVID-19 pandemic. The phrase “business as usual” was broadly used by both EHP’s and managers, this generally summarises work experiences of both operational staff and management during that period.

CHAPTER 5: COVID-19 REGULATIONS AND GUIDELINES APPLICABLE TO ENVIRONMENTAL HEALTH

5.1 Introduction

As indicated in chapter 1, the purpose of this study to establish capabilities which were required from EHP's in the performance of their duties during the COVID-19 pandemic. The previous chapter (Chapter 4) provides an overview of environmental health functions performed by officials of the City of Cape Town before the COVID-19 pandemic, while this chapter (Chapter 5) answers the third sub-question by describing the nature and scope of COVID-19 regulations and guidelines applicable to the Environmental Health Department of the City of Cape Town (see figure 5.1 for a mapping of the chapters in this dissertation).

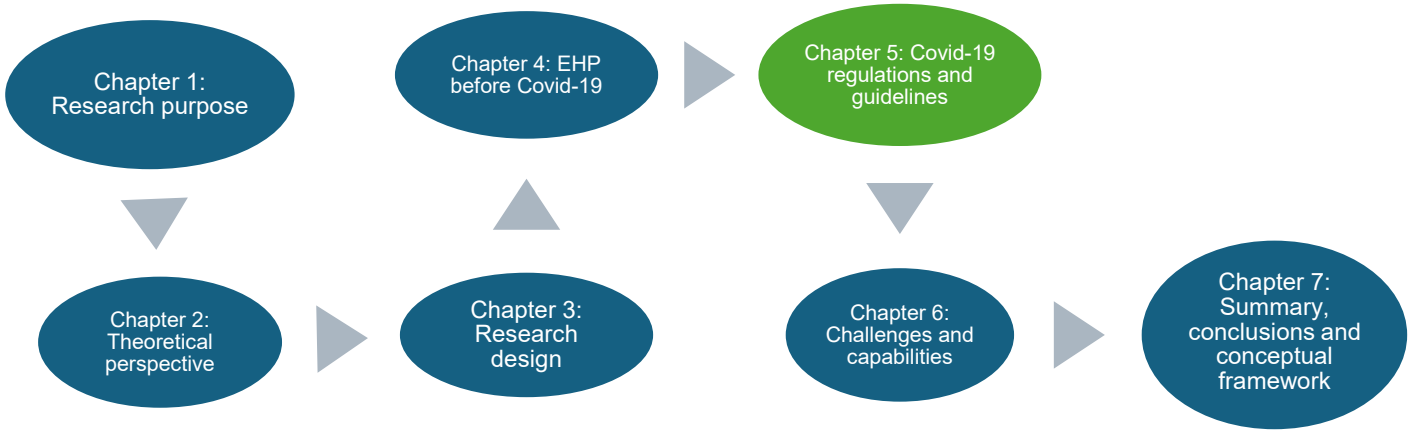


FIGURE 5.1: CHAPTER MAPPING

(Chapter titles in abbreviated form)

Chapter 5 aims to describe how these regulations, directives and guidelines influenced the nature and scope of Environmental Health functions performed during the COVID-19 pandemic. Primary information sources used consist of the regulations, directives and guidelines published during this period in the Government Gazette.

This chapter reports on a content analysis of these documents to identify and describe directives and guidelines applicable to the Environmental Health functions of the City of Cape Town. Guidelines and regulations published during the COVID-

19 pandemic prescribed the manner in which services were rendered and how people interacted. Restrictions were introduced in specific sectors and specified activities, while law enforcement agencies and EHP's were expected to promote and enforce these guidelines and regulations. The primary focus of these activities was the containment of the virus and prevention to minimise its impact on communities (Rodrigues, et al., 2021: 2).

In describing the nature and scope of the COVID-19 regulations and guidelines applicable to the Environmental Health Department of the City of Cape Town, this chapter provides first, an overview of a typology of the relevant regulatory and guiding documents, followed by a description of the nature and scope of the bearing of these documents on the environmental health functions of the City of Cape Town.

5.2 Typology of regulatory and guiding documents

During the COVID-19 pandemic in South Africa, which was between March 2020 and July 2022, a number of regulations and guidelines were gazetted. These documents provided guidelines for the management, prevention and containment of the pandemic within the country. These guidelines were used to enforce compliance in different sectors, such as food, education, healthcare, transport, funeral services, entertainment and correctional services among others.

This chapter identifies and summarises COVID-19 related guidelines applicable to Environmental Health Services. All guidelines published during the National State of Disaster period (15 March 2020 - 4 April 2022) are included for this purpose. This information was sourced from the official website of the South African Government (Republic of South Africa, 2025) as well as from the Knowledge Hub website of the National Department of Health (NDOH) (NDOH, 2025).

In total, 338 official documents were published on the government website under the heading "Regulations and guidelines – Coronavirus COVID-19" (Republic of South Africa, 2025), although only 138 are applicable to Environmental Health functions at local municipality level. A document classification set was established

while conducting content analysis of all documents linked to COVID-19. Two guideline documents were published on the NDOH Knowledge Hub website.

These documents are categorised on the government website under the following headings:

- Regulations (with sub-categories: health regulations, core regulations and other lockdown regulations)
- Directions
- Disaster management guidelines and notices
- National Department of Health guidelines; and
- Disaster Management Act

Since the criteria separating these categories is unclear, the method of classification is examined in subsequent sections.

5.2.1 Regulations

In total, 29 regulations associated with Environmental Health were promulgated between 5 March 2020 and 4 April 2022. These regulations, categorised as health regulations, core regulations, guidelines and other lockdown regulations (Republic of South Africa, 2025b) were published during the COVID-19 period to guide Environmental Health functionaries.

5.2.1.1 Health regulations

No less than four regulations were promulgated under the National Health Act 61 of 2003 (Republic of South Africa, 2003) during this period. This Act serves as the foundational piece of Environmental Health and other health professions functions. EHP's are classified as "health officials" and according to section 81 of this Act, "a health officer must monitor and enforce compliance with this Act". This essentially means that EHP's are mandated to enforce provisions of this Act. The four regulations were mainly aimed at inviting comments on regulations related to environmental health, management of human remains, surveillance and control of notifiable medical conditions.

5.2.1.2 Core regulations

While no definition is provided for the category “Core regulations”, the common characteristic of these regulations is that they were promulgated under the Disaster Management Act 57 of 2002 (Republic of South Africa, 2002). No less than 10 out of the 14 regulations promulgated during this period pertains to COVID-19 alert levels.

5.2.1.3 Other lockdown regulations

The category “other lockdown regulations” consists of a mixture of 22 disaster management regulations, healthcare sector exemptions and lockdown regulation amendments. Only five of them relate to environmental health functions.

5.2.2 Directions / Directives

When considering the category ‘directions’ as used on the official website (Republic of South Africa, 2025b), it became evident that all the documents included in this category are actually ‘directives’. Although ‘directive’ is not explicitly defined in the relevant legislation, the Oxford Dictionary (2025) defines it as “an official or authoritative instruction,” which may be used for reference.

The category ‘directions’ consists of 233 directives of which 74 contain various instructions to individual sectors (such as transport, education, healthcare and residential services, food, transport, funeral services, entertainment and correctional services).

Environmental Health activities are linked to these sectors, and directives strictly controlled how work was executed in each area, such as the Amended directions on the phased return of children to early childhood development programmes and partial care facilities (Alert level 2, 11 Sept 2020).

Each time a directive was published, EHP’s were compelled to adjust their approach to the management of the pandemic and the overall service rendered. A case in point was the Health directions, 8 Apr 2020 and the Amended health directions, 25 May 2020.

5.2.3 Disaster management guidelines and notices

The category “Disaster management guidelines and notices” consist of 24 items of which eight aimed to guide EHP’s with the management of the virus both in the field and within the workplace. Examples are: Guidance for childcare facilities and schools on COVID-19, 11 Mar 2020, Guidelines for Mandatory Code of Practice on Mitigation and Management of Coronavirus COVID-19 Outbreak, 18 May 2020 and Disaster Management Act: Code of Practice: Managing exposure to SARS-CoV-2 in the workplace, 15 Mar 2022.

5.2.4 National Department of Health guidelines applicable to the Environmental Health Service

National Department of Health (NDOH) guidelines were not published in the Government Gazette. On 16 March 2020 the NDOH distributed the first official guideline document via email to various provinces. Soon thereafter, on the 27th March 2020 two additional guidelines were distributed via the same channel. This information was sourced from the National Institute for Communicable Diseases (NICD) and the Knowledge Hub website (NDOH, 2025).

These guidelines explicitly outlined key roles for EHP’s and provided guidance on Environmental Health Services related to the management of the outbreak.

These guidelines included recommendations and protocols on the role of EHP’s in the management of COVID-19, management of the deceased and disposal of bodies infected by COVID-19, tracing contacts, facilitation of household, workplace and environmental decontamination / disinfection of patients and contacts, health education, monitoring the management of waste and reporting. Initial guidelines were made available on the NICD website on June 24, 2020. The remaining two were later published on the NDOH Knowledge Hub website, though the exact date in late 2020 is unknown. Both hosting sites categorise these documents as guidelines.

5.2.5 Disaster Management Act

The Disaster Management Act 57 of 2002 (Republic of South Africa, 2002) provides a framework which focuses on disaster coordination by preventing or reducing disaster risks, mitigating the severity of disasters, emergency preparedness, rapid and effective response to disasters and post-disaster recovery in South Africa. The Act largely speaks about an integrated approach to Disaster Risk Management (Republic of South Africa, 2002: 2). On the 15th of March 2020 this was further reinforced by the President of South Africa, Cyril Ramaphosa when he first addressed the nation on measures to combat COVID-19 epidemic and announced the declaration of the national state of disaster in terms of the Disaster management Act, he stated “This will enable us to have an integrated and coordinated disaster management mechanism that will focus on preventing and reducing the outbreak of this virus“ (Republic of South Africa, 2025a). The category “Disaster Management Act” consists of 35 official notices relating to the declaration and extension of a National State of Disaster (COVID-19) and determination of various Alert Levels.

On the 15th of March 2020 the Minister of Cooperative Governance and Traditional Affairs published the Classification and Declaration of a national disaster: COVID-19 (coronavirus) documents under the Disaster Management Act 57 of 2002, Declaration of a National State of Disaster: COVID-19 (coronavirus).

This was a significant moment in the response to COVID-19 in the country and it paved the way for the rapid release of many associated regulations, notices and guidelines. The main documents and numbers per classification are outlined below as follows:

TABLE 5.1: SUMMARY OF COVID-19 REGULATIONS AND GUIDANCE DOCUMENTS LINKED TO THE ENVIRONMENTAL HEALTH DEPARTMENT PUBLISHED DURING THE COVID -19 NATIONAL STATE OF DISASTER PERIOD IN SOUTH AFRICA

Group Classification	No. of Documents	Title
Health regulations – promulgate under the National Health Act	4	Regulations: Environmental health: Comments invited, 15 Mar 2022 Regulations: Management of human remains: Comments invited, 15 Mar 2022 Regulations: Surveillance and control of notifiable medical conditions: Amendment: Comments invited, 15 Mar 2022 Regulations: Surveillance and control of notifiable medical conditions: Amendment: Extension of deadline for comments invited, 14 Apr 2022
Core regulations (made under the Disaster Management Act 57 of 2002)	14	Lockdown regulations amendment, 16 Apr 2020 Lockdown regulations amendment, 20 Apr 2020 Alert level 4 lockdown regulations, 29 Apr 2020 Alert level 1 lockdown regulations, as amended on 24 Dec 2020 Determination of adjusted alert level 1, 28 Feb 2021 Alert level 1 adjusted lockdown regulations, as amended on 22 Apr 2021 Alert level 2 adjusted lockdown regulations, as amended on 30 May 2021 Alert level 3 adjusted lockdown regulations, 15 June 2021 as amended on 17 June 2021 Alert level 4 adjusted lockdown regulations, 27 June 2021 Alert level 4 lockdown regulations amendment, 29 June 2021 Alert level 3 adjusted lockdown regulations, 25 July 2021 as amended on 30 July 2021 Alert level 2 adjusted lockdown regulations, 12 September 2021 Alert level 1 adjusted lockdown regulations, 30 September 2021 as amended on 22 March 2022 Regulations in place with lifting of National State of Disaster, 4 April 2022
Other lockdown regulations	5	Disaster management regulations, 18 Mar 2020 Healthcare sector exemptions, 19 Mar 2020 Lockdown regulations amendments, 26 Mar 2020 Lockdown regulations amendment, 2 Apr 2020 Healthcare sector exemptions expansion, 8 Apr 2020
Directions (referred to as Directives)	72	Public transport lockdown directions, 26 Mar 2020 Amended transport directions for buses and taxis, 31 Mar 2020 Public transport lockdown directions amendment, 7 Apr 2020 Health directions, 8 Apr 2020 Sports, arts and culture directions, 9 Apr 2020

Group Classification	No. of Documents	Title
		Correctional services and remand detention facilities directions, 9 Apr 2020 Occupational health and safety directions, 29 Apr 2020 Once-off movement directions, 30 Apr 2020 Alert level 4 public transport services directions, 4 May 2020 Alert level 4 amended public transport services directions, 6 May 2020 Determination of correctional facilities as places of detention of illegal foreigners pending deportation, 7 May 2020 Amended directions on movement of persons and goods, 7 May 2020 Once-off movement directions, 14 May 2020 Alert level 4 amended public transport services directions, 22 May 2020 Amended health directions, 25 May 2020 Alert level 3 directions for religious gatherings, 28 May 2020 Re-opening of schools under Coronavirus COVID-19 lockdown, 29 May 2020 Alert level 3 public transport directions, 30 May 2020 Amended re-opening of schools under Coronavirus COVID-19 lockdown, 1 Jun 2020 Consolidated Direction on Occupational Health and Safety Measures in Certain Workplaces, 4 Jun 2020 Directions: Alert level 3 Sport, Arts and Cultural Events, 11 Jun 2020 Directions: Alert level 3, 4 and 5: Correctional services and remand detention facilities, 22 Jun 2020 Directions: Re-opening of schools, 23 Jun 2020 Amended health directions, 26 Jun 2020 Amended directions: Alert level 3: Re-opening of schools, 29 Jun 2020 Alert level 3: Tourism facilities, services and products, 29 Jun 2020 Amended directions for sporting events, training and matches to resume, opening of libraries, museums, cinemas, theatres, galleries and archives under Alert Level 3, 6 Jul 2020 Amended directions: Alert level 3: Re-opening of schools, 7 Jul 2020 Directions on phased return of children to early childhood development programmes and partial care facilities, 10 Jul 2020 Amended health directions, 17 Jul 2020 Directions on public transport services, 22 Jul 2020 Amended directions: Alert level 3: Re-opening of schools, 2 Aug 2020 Amended directions for sporting events, training and matches to resume, opening of libraries, museums,

Group Classification	No. of Documents	Title
		cinemas, theatres, galleries and archives under Alert Level 3, 6 Aug 2020 Amended health directions, 7 Aug 2020 Alert level 2 public transport services directions, 25 Aug 2020 Amended directions for Sport, Arts and Culture, 28 Aug 2020 Public transport services amended directions, 2 Sept 2020 Alert level 2: Amended directions on phased return of children to early childhood development programmes and partial care facilities, 11 Sept 2020 Amended directions for re-opening of schools, 15 Sept 2020 Amended public transport services directions, 16 Sept 2020 Consolidated direction on occupational health and safety measures in certain workplaces, 1 Oct 2020 Amended directions on Coronavirus COVID-19 lockdown, 1 Oct 2020 Directions: Alert Level 1: Norms and standards for religious gatherings, 1 Oct 2020 Directions: Alert Level 1: Norms and standards for religious gatherings, 3 Oct 2020 Amended directions for Sport, Arts and Culture, 7 Oct 2020 Amended directions for re-opening of schools, 21 Oct 2020 Amended directions for land ports in Alert Level 1, 23 Oct 2020 Amended health directions, 3 Dec 2020 Amended public transport services directions, 14 Dec 2020 Amended health directions, 15 Dec 2020 Amended public transport services directions, 24 Dec 2020 Amended Adjusted Alert Level 3 directions for Sport, Arts and Culture, 5 Jan 2021 Re-opening of schools for the 2021 Academic Year under Adjusted Alert Level 3, 22 Jan 2021 Directions on correctional centres and remand detention facilities, 28 Jan 2021 Amended public transport services Alert Level 3 directions, 29 Jan 2021 Directions for re-opening of schools in 2021, 12 Feb 2021 Amended health directions - disposal of mortal remains, 19 Mar 2021 Amended public transport services Alert Level 1 directions, 25 Mar 2021 Amended directions for re-opening of schools in 2021, 27 Mar 2021 Directions for re-opening of schools in 2021, 23 Apr 2021 Directions for re-opening of schools in 2021, 28 May 2021 Amended directions for Sport, Arts and Culture, 6 Jul 2021 Amended directions for re-opening of schools in 2021,15 Jul 2021 Amended directions for Sport, Arts and Culture, 19 Jul 2021

Group Classification	No. of Documents	Title
		Directions on correctional centres and remand detention facilities, 21 Jul 2021 Amended directions for re-opening of schools in 2021, 1 Aug 2021 Amended directions for Sport, Arts and Culture, 2 Aug 2021 Amended directions for closing and re-opening of schools, 22 Oct 2021 Amended directions for closing and re-opening of schools, 14 Jan 2022 Amended directions for full time return of learners to schools, 6 Feb 2022 Amended directions for Sport, Arts and Culture, 1 Apr 2022 Directions: Full time return of learners to schools and measures to address, prevent and combat the spread of Coronavirus COVID-19 in the Education Sector, 4 Apr 2022
Disaster management guidelines and notices	8	Guidance for childcare facilities and schools on COVID-19, 11 Mar 2020 State of Disaster: Public Service guidelines for containment / management of Coronavirus COVID-19, 16 Mar 2020 Guidelines for Mandatory Code of Practice on Mitigation and Management of Coronavirus COVID-19 Outbreak, 18 May 2020 Guidelines: Public Service return to work after the easing of COVID-19 lockdown, 1 May 2020 Guidelines for quarantine and isolation, 5 May 2020 Circular regarding preparation and planning for the re-opening of early childhood development programmes and/or partial care facilities that provide an after-school service, subject to the announcement of a date by the Minister of Social Development, 21 Jun 2020 Exclusion of Coronavirus COVID-19 vaccines from the operation of certain provisions, 15 Nov 2021 Disaster Management Act: Code of Practice: Managing exposure to SARS-CoV-2 in the workplace, 15 Mar 2022
National Guidelines	2	COVID-19 Environmental Health Response Guidelines, Mar 2020 Environmental Health Guidelines for Management of Human Remains in the context of COVID-19, Mar 2020
Disaster Management Act	34	Classification of a national disaster: COVID-19 (coronavirus), 15 Mar 2020 Declaration of a National State of Disaster: COVID-19 (coronavirus), 15 Mar 2020 Declaration of a National State of Disaster: COVID-19 (coronavirus): Extension, 5 Jun 2020 Declaration of a National State of Disaster: COVID-19 (coronavirus): Extension, 13 Jul 2020 Declaration of a National State of Disaster: COVID-19 (coronavirus): Extension, 15 Aug 2020

Group Classification	No. of Documents	Title
		Declaration of a National State of Disaster: COVID-19 (coronavirus): Extension, 14 Sept 2020 Determination of Alert Levels and Hotspots: Coronavirus COVID-19 Alert Level 1 will apply nationally from 00H01 on 21 September 2020, 18 Sept 2020 Declaration of a National State of Disaster: COVID-19 (coronavirus): Extension, 14 Oct 2020 Extension of National State of Disaster under Coronavirus COVID-19 lockdown, 14 Nov 2020 Regulations: Alert level 1 during Coronavirus COVID-19 lockdown: Explanatory note, 3 Dec 2020 Regulations: Coronavirus COVID-19 lockdown: Determination of alert levels and hotspots: Amendment, 29 Dec 2020 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 February 2021, 13 Jan 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 March 2021, 11 Feb 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 April 2021, 11 Mar 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 May 2021, 14 April 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 June 2021, 14 May 2021 Determination of Alert Level: Coronavirus COVID-19 Alert Level 2 will apply nationally from 00H01 on 31 May 2021, 30 May 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 July 2021, 11 Jun 2021 Determination of Alert Level: Coronavirus COVID-19 Alert Level 3 will apply nationally from 00H01 on 16 June, May 2021, 15 Jun 2021 Determination of Alert Level: Coronavirus COVID-19 Alert Level 4 will apply nationally on 28 June 2021, 27 Jun 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 August 2021, 12 Jul 2021 Determination of Alert Level: Coronavirus COVID-19 Alert Level 3 will apply nationally from 26 July 2021, 25 Jul 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 September 2021, 12 Aug 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 October 2021, 12 Sept 2021 Determination of Alert Level: Coronavirus COVID-19 Alert Level 2 will apply nationally from 13 September 2021, 12 Sept 2021

Group Classification	No. of Documents	Title
		Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 October 2021, 26 Sept 2021 Determination of Alert Level: Coronavirus COVID-19 Alert Level 2 will apply nationally from 1 October 2021, 30 Sept 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 November 2021, 13 Oct 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 December 2021, 13 Nov 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 January 2022, 10 Dec 2021 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 February 2022, 14 Jan 2022 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 March 2022, 13 Feb 2022 Extension of National State of Disaster under Coronavirus COVID-19 lockdown to 15 April 2022, 14 Mar 2022 Termination of national state of disaster, 4 Apr 2022
Total:	**138**	

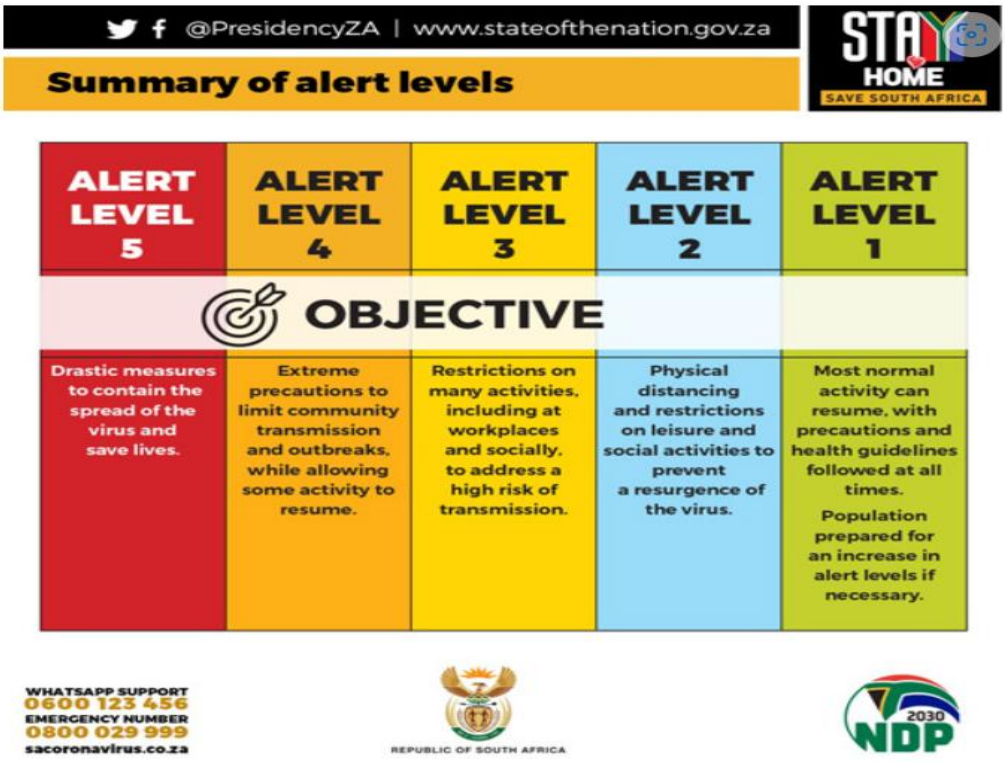


FIGURE 5.2: SUMMARY OF THE ALERT LEVELS DURING THE COVID-19 NATIONAL STATE OF DISASTER PERIOD IN SOUTH AFRICA

5.3 The impact of COVID-19 regulations and guidelines on the nature and scope of Environmental Health functions

Environmental Health Services were put under severe strain due to added responsibilities placed on EHP's at the time. In addition, due to the focus on managing COVID-19 from a public health viewpoint, the Environmental Health service reprioritised tasks, leading to the postponement of non-essential duties. Officials also continually had to modify their procedures in response to newly published or revised legislation. A significant factor influencing officials' work was the high volume of regulatory documents received rapidly.

In section 4.3.3 in the preceding chapter, it was established that participants were in alignment around their functions in relation to relevant legislation and guidelines were in place before the COVID-19 pandemic. With this as the backdrop, the discussion in this section focuses on the impact of these regulations, directives and guidelines on the nature and scope of the nine Environmental Health functions as performed during the COVID-19 pandemic period.

Shortly after the national state of disaster was declared, the Environmental Health Service was provided with guidelines by the National Department of Health, namely, "The COVID-19 Environmental Health Response Guidelines (NDOH, 2025)." The following aspects were framed as the focal point of the EHP's role in the management of COVID-19:

a. Participation in Outbreak Response Teams
b. Investigation of suspected cases and contact tracing
c. Monitoring of the management of human remains and disposal of the dead
d. Facilitate and monitor the decontamination and disinfection of affected homes
e. Monitor the management of healthcare waste.
f. Health education and awareness on public health measures

The following sub-sections describe how each Environmental Health Function was influenced by COVID-19 regulations and guidelines.

5.3.1 Water quality monitoring

Drinking, coastal and Moore pad water[6] sampling forms the main segments of the overall water quality monitoring programme (see also 4.3.3(a). Drinking water sampling is conducted on a weekly basis at set water points located on Council property by EHP's and Environmental Health Assistants.

The water sampling protocol is set out in the Policy for Sampling potable water in the distribution system (City of Cape Town, 2013). Water is analysed for compliance with microbiological and chemical standards. The sampler would usually be alone out in the field, and the sampler had to adhere to COVID-19 protocols as outlined in the regulations (for instance mask wearing, sanitisation and keeping a social distance of more than 1.5 meters where applicable) as per Alert level 4 lockdown regulations, 29 Apr 2020. Due to additional questionnaires used for signing in at sites and stringent hand hygiene protocols that had to be adhered to, affected the efficiency of water sampling runs, taking the sampler additional time to complete this task.

5.3.2 Food control

The food industry experienced a significant decline because of the initial intermittent lockdown regulations that were implemented. This meant a cease on in-dining (sitting down indoors for a meal) and alcohol sales in food establishments which subsequently led to a decline in the performing of the food control function, in particular on-site inspections at food premises (Sarvela, Läikkö-Roto & Lundén, 2023: 1315; see also 4.3.3 (b) in Chapter 4). On 29 June 2020, after the Minister of Tourism, Mmamoloko Kubayi signed off Alert level 3: Tourism facilities, services and products, restaurants were allowed to seat patrons to 50% of their capacity

[6] An environmental surveillance method whereby a piece of gauze is tied with string is suspended in flowing water or wastewater contaminated aiming to detect if any pathogenic microorganisms are present poses a risk to public health (i.e. bacterium *Vibrio cholerae*), (Sikorski & Levine, 2020).

while adhering to the COVID-19 protocols, in particular, the restrictions and management measures relating to social distancing, wearing of masks in public places and curfew times (Bhoola, 2022: 1410).

The low level of activity of this sector led to the certification, inspections, training and sampling usually carried out by EHP's being down scaled for most of the national state of disaster period. However, EHP's played a monitoring and enforcement role of the COVID-19 regulations within the food sector.

5.3.3 Waste management and general hygiene monitoring

Despite the numerous changes in regulations, waste management and general hygiene monitoring function (see also 4.3.3(c) in Chapter 4) continued to be done by EHP's during the COVID-19 pandemic, as waste management remained a crucial aspect in ensuring public health.

Medical and general waste generators were monitored, and the applicable legislation was enforced (for example, Regulations 375 Relating to Health Care Waste Management in Health Establishments, 2014 and the City of Cape Town Environmental Health By-Law, 30 June 2003.

The NDOH COVID-19 Environmental Health Response Guidelines, 27 Mar 2020 placed emphasis and added responsibly on EHP's around monitoring the management of waste (NDOH, 2025).

5.3.4 Health surveillance of premises

Schools and Early Childhood Development Centres (Daycares) are premises routinely inspected by EHP's. In addition, planned health and hygiene surveillance (see 4.3.d) interventions are undertaken at these premises. There were no less than 19 directives published that addressed the closure and reopening of schools (see directives on pages 10 to 12). Fewer directives were published relating Early Childhood Development Centres. This was notably less than directives published for schools.

The impact of these directives meant changes in delivering the Environmental Health Service at these institutions and adapting the scope of inspections during periods when they were open by introducing the COVID-19 compliance elements such as social distancing, sanitising of hands, cleaning, sanitising surfaces and wearing of masks to routine inspections.

Regular/standard/routine inspections ceased at institutions such as old age homes due to the vulnerability of the relevant group who were often plagued with comorbidities and were at a higher risk of contracting the virus (Frazer, et al., 2021: 2). On the other hand, COVID-19 awareness interventions were undertaken at these establishments to mitigate the impact of the virus in long term care facility settings and the community as a whole (NDOH, 2025). According to Ashwell, Jacobs, Docrat & Schneider (2020:3), the long-term care sector in South Africa was proactive to their response to COVID-19 and put preventative and management measures in place to remain safe.

EHP visits to places of entertainment (example: bars and nightclubs) increased since the start of the pandemic due to COVID-19 compliance monitoring. This was one of the sectors that was identified as high risk due to the inherent close contact interaction between patrons and staff members (Wong, Lee, Kwan & Yeoh, 2020: 8-9).

Alert level 3, published on the 28th of May 2020 (Disaster Management, 2000) required that all places of entertainment, among other public establishments close for members of the public.

5.3.5 Surveillance and prevention of communicable diseases

Regulations relating to the surveillance and control of notifiable medical conditions (NDOH, 2017) and (see also 4.3.3(e)) formed the heart of all tasks linked to the management of COVID-19 from an EHP perspective. Before the COVID-19, other notifiable medical conditions (such as Hepatitis A, Enteric Fever, Agricultural or stock remedy poisoning, Listeriosis and Legionellosis) were more prevalent compared to during the pandemic period.

Due to the sheer volume of reported COVID-19 cases and the rapid spread of the virus, a noticeable shift in focus occurred and the spotlight was placed on COVID-19 and associated tasks. As per NDOH COVID-19 response guidelines (NDOH, 2025) contact tracing was done during the onset of the national state of disaster announcement with large numbers of new cases reported (Morse, Chidziwisano, Musoke, Beattie & Mudaly, 2020: 1).

Contact tracing was conducted in person and telephonically, deviating from the in-person norm due to the risk of transmission when visiting the home of a potentially COVID-19 positive case. In addition, supplementary administrative tasks were associated with contact tracing, as patients needed to be interviewed daily to monitor their symptoms and offer support. COVID-19 contact tracing was stopped as per Western Cape Government Circular H218 of 2021 and later revised Circular H221 of 2021 which required contact tracing to be conducted in congregate settings. Mainly because of many people who were vaccinated with at least one dose of a COVID-19 vaccine which considerably contributed to low hospitalisation levels and high recovery rates (Disaster Management 2021).

The surveillance and control of notifiable medical conditions regulations[7] remained in place for most of the COVID-19 period and was in the process of being amended during later stages of the national state of disaster.

5.3.6 Vector control

The vector control (see also 4.3.3(f) routine service and responding to pest related complaints is primarily executed by Environmental Health Assistants across the City of Cape Town. This service continued as usual. However, the nature of executing these tasks was adjusted in adherence to the COVID-19 protocols of

[7] Two examples are: Regulations: Surveillance and control of notifiable medical conditions: Amendment: Comments invited, 15 Mar 2022 and;
Regulations: Surveillance and control of notifiable medical conditions: Amendment: Extension of deadline for comments invited, 14 Apr 2022.

mask wearing, practicing social distancing and increasing hand washing and sanitation frequency.

Extra caution had to be taken when interacting with members of the public to aid the pressing concern of healthcare staff safety (McDougall, Gillam, Ko, Holmes & Delany, 2021: 318).

5.3.7 Environmental pollution control

Dirty or unsightly conditions caused by inadequate hygiene practices and dumping was continually monitored and investigated by EHP's during COVID-19 as part of the environmental pollution control function (see 4.3.3, g). The main channel where these conditions are reported is by using a complaints procedure. A decrease in the amount of community complaints related to unhygienic conditions was experienced at the time. Lockdown regulations restricted the movement of people which impacted the number of illegal dumping instances that took place at the time. The result of this was that the workload was decreased within this function.

Legal notices that are conventionally hand delivered were no longer personally served on owners or persons in charge of premises. This was to mitigate the potential exposure to COVID-19 when dealing with clients face to face. Creative methods were used by various Environmental Health Offices.

5.3.8 Disposal of the dead

Three documents initially outlined protocols for EHP's relating to the disposal of the dead (see also 4.3.3(h) in Chapter 4). Work done in accordance with this function was impacted the most compared to other the Environmental Health functions. Apart from the change in the nature (that is wearing personal protective clothing) when approaching inspections at funeral homes, the scope of the inspections changed dramatically. In addition to compliance to the Regulations relating to the Management of Human Remains, 363 of 22 May 2013, EHP's were also expected to provide guidance to funeral undertakers on the safe handling and disposal of

COVID -19 mortal remains, the viewing of human remains, environmental cleaning, control and conveyance of human remains (NDOH, 2025).

Certain additional administrative duties were required from EHP's according to the Health directions (Department of Health, 2000: Section 7), namely:

> "(1) All Metropolitan and District Municipalities must identify suitably authorised mortuaries with valid certificates of competence for the accommodation of all COVID 19 mortal remains and further management.
>
> (2) All Provincial Departments of Health must identify suitable government mortuaries that will accommodate COVID -19 mortal remains and determine their capacity.
>
> (3) All the above information should be submitted to the National Department of Health within 48 hours of the date of the publication of these directions for the attention of the Chief Director: Environmental Health and Port Health Services."

Attendance at funerals was limited to 50 persons and was monitored by EHP's in line with COVID-19 protocols in terms of the Level 3 Regulations published on the 28th of May 2020 (Disaster Management, 2000).

This aspect changed both the nature and scope of the disposal of the dead as EHP's enforcement in this space required sensitivity and compassion as normally people in the homes and cemeteries would still be in mourning.

Due to the volume of COVID-19 related deaths and administrative requests made by the National Department of Health, the frequency of monitoring visits to funeral homes was on average twice per week, in contrast to the bi-annual monitoring frequency as set in the norms and standards for Environmental Health and the quarterly frequency target set (PDR).

5.3.9 Chemical Safety

During the pandemic, investigations and awareness campaigns regarding chemical safety (see also 4.3.3(i) in Chapter 4) were not regarded as a priority. This decision was influenced by the low number of reported chemical poisoning cases and the inherent risk of public engagement associated with awareness campaigns. Furthermore, no specific regulations or guidelines on chemical safety were published during this period.

5.3.10 Other related functions

It is important to note that health promotion, awareness and education activities cut across each of these functions and educating the community of mandatory COVID-19 hygiene protocols became priority. Health and hygiene awareness interventions were predominantly targeted at public spaces where many people congregated (for example public transport interchanges, post offices, informal settlements, government buildings – department of home affairs, department of employment and labour, shopping malls, et cetera). The increase of these community interventions resulted in a remarkable increase in the risk associated with the activity and demanded that the COVID-19 protocols be strictly adhered to.

Law enforcement activities occurred concurrent to health promotion activities. EHP's issued COVID-19 warning notices where non-compliance was observed. While law enforcement was not new in the field of environmental health, enforcement in this context was new.

TABLE 5.2: SUMMARY OF HOW THE NATURE AND SCOPE OF ENVIRONMENTAL HEALTH FUNCTIONS WERE INFLUENCED BY THE COVID-19 LEGISLATION AND GUIDANCE DOCUMENTS

EH Function (as per the mandated 9 functions of EH)	Nature	Scope
Water quality monitoring	Adherence to COVID-19 protocols required to remain safe.	The general Scope remained unchanged. However, questionnaires for signing in at sites and additional

EH Function (as per the mandated 9 functions of EH)	Nature	Scope
		hand hygiene protocols were required which increased that time spent taking water samples.
Food control	Adherence to COVID-19 protocols required to remain safe.	Increase in scope, which included COVID-19 monitoring and enforcement activities.
Waste management	Adherence to COVID-19 protocols required to remain safe.	Closer monitoring of medical waste management increased the scope.
Health surveillance of premises	Adherence to COVID-19 protocols required to remain safe in all sectors.	The closure of school and early childhood development centres changed the scope. Increase in health and hygiene interventions at old age homes and prisons due to the vulnerability of the group. COVID-19 enforcement activities grew in this function to aid the management of the virus.
Surveillance and prevention of communicable diseases (excluding immunisations)	Adherence to COVID-19 protocols required to remain safe. Contact tracing conducted via telephone where possible to reduce the risk of exposure and to increase efficiency.	Tremendous increase in scope, with contact tracing, monitoring cleaning and decontamination and Monitoring of the adherence to the COVID-19 protocols. Decrease in the occurrences of other common notifiable medical conditions. Increase in administration overall.
Vector control	Adherence to COVID-19 protocols required to remain safe.	Work was conducted as per norm with a marked decrease in rodent related complaints.
Environmental pollution control	Manner in which legal notices were served changed.	Decrease in unhygienic conditions complaints received.

Disposal of the dead	Personal protective clothing to be worn when inspecting Funeral homes and strict adherence to COVID-19 protocols. Nature of Reporting changed.	Significant change in scope. Increase in number of visits to funeral homes. Advising funeral homeowners on the protocols to follow for the management of human remains in the context of COVID-19. Funeral gathering monitoring and protocol enforcement. Reporting to NDOH on a weekly basis.
Chemical safety	Unchanged.	Organophosphate cases reported decreased. Health promotion continues.
Other related functions	More time spend on administrative duties related to COVID-19 and Health Promotion / Awareness activities.	Change in scope due to increase in COVID-19 enforcement. Increase in health and hygiene interventions frequency in community. Less building plan scrutiny and land use applications.

5.4 Conclusion

This chapter highlights relevant documents that influenced the way of work of EHP's. Out of a total of 338 documents published by the South African government related to COVID-19, 138 were linked to Environmental Health functions. This contributed to more than 41% of the total of documents published at the time, which illustrates the importance of the Environmental Health Service in helping to manage the COVID-19 pandemic in South Africa.

The Disaster Management Act and regulations in conjunction with COVID-19 Environmental Health Guidelines formed a foundation for all other documents and actions that were linked to the Environmental Health Service. A strong link was evident between most of the documents and the surveillance of premises, prevention of communicable diseases and the disposal of the dead bodies as core functions of Environmental Health. Health promotion awareness activities in communities, particularly regarding COVID-19 safety protocols and restrictions were some of the functions performed at the time. The opening and closing times or trading hours were also regulated based on various directives and adjusted as promulgated. This compelled the Environmental Health Management of the City of Cape Town to continually adjust their COVID-19 management approaches.

CHAPTER 6: CHALLENGES EXPERIENCED BY ENVIRONMENTAL HEALTH OFFICIALS AND CAPABILITIES TO OVERCOME THESE CHALLENGES

6.1 Introduction

Chapter 5 described how the COVID-19 regulations, directives and guidelines influenced the nature and scope of Environmental Health functions performed in the City of Cape Town during the COVID-19 pandemic. The purpose of this chapter is three-fold, firstly, to identify challenges posed by the COVID-19 regulations on the ability of environmental health officials in the City of Cape Town to perform their functions, secondly, to find out which capabilities were needed to overcome these challenges, and thirdly, to identify lessons learnt from the COVID-19 response. In doing so, research questions 4 will be addressed.

A key concept in the purpose statement of this chapter is ‘challenge’. Therefore, this starts with an analysis of this concept within the context of this study in order to provide a conceptual framework for the rest of this chapter in section 6.2. The brief concept analysis is followed by an overview of interview questions (section 6.3), a description and interpretation of lived experiences of environmental health officials on challenges posed by the COVID-19 pandemic and subsequent regulations (section 6.4), their experience on required capabilities enabling them to respond to those challenges (section 6.5) and the summary of lessons learnt from their experiences in relation to these challenges (section 6.6). Their experiences are categorised and interpreted by developing themes and subthemes supported by direct quotes which emanated from individual interviews and focus group discussions.

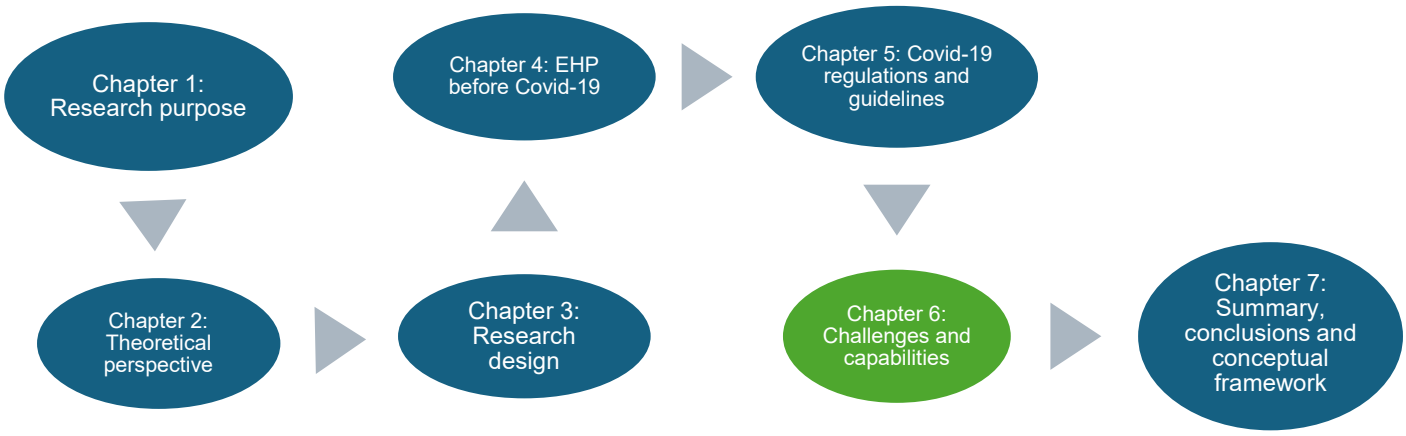


FIGURE 6.1: CHAPTER MAPPING

(Chapter titles in abbreviated form)

6.2 The concept 'challenge' within the context of the current study

Two English dictionaries, Collins (2025) and Oxford (2025) describe and define the meaning of the word challenge in the following manner: on the one hand the Oxford dictionary describes 'challenge' as a difficult or demanding task, especially one seen as a test of one's abilities or character. Collins Dictionary on the other hand defines a 'challenge' as something new and difficult which requires great effort and determination (Collins, 2025). These dictionaries depict a 'challenge' as a new and complex task that tests a person's abilities and requires a substantial amount of effort to overcome.

Wessels (2020: 152-157) conceptualises the term 'challenge' by encompassing a trichotomous of core attributes. These attributes are, task, level of difficultness and required capabilities. Although these core attributes are interlinked, each one has its own distinct empirical indicators that prove its presence in real life. For this study a 'challenge' refers to Environmental Health Service functions (tasks), the difficulty in performing these tasks due to COVID-19 regulations and required capabilities to overcome these difficulties.

6.3 Questions to obtain lived experiences of environmental health officials

This section reports on experiences of EHPs, SEHP and managers on challenges posed by the COVID-19 pandemic, subsequent regulations, their ability to perform their functions in this context, and capabilities they used to overcome these challenges. The following questions were posed to EHPs and SEHPs:

- Can you tell me about your experience of challenges posed by COVID-19 on the ability of your Environmental Health Office to perform its functions during the pandemic? (see section 6.4 for their responses)
- Can you tell me how you and your colleagues responded to specific challenges during the pandemic? (see section 6.5 for their responses)
- Can you tell me what lessons were learned from the COVID-19 experience by you and/or the Environmental Health Office? (see section 6.6 for their responses).

  While most of the questions posed to managers were the same as the above, some of the questions were formulated slightly different to accommodate their managerial responsibilities. Therefore, questions posed to managers were as follows:

- Can you tell me about your experience of challenges posed by COVID-19 on the ability of your Environmental Health Department to perform its functions during the pandemic? (see section 6.4 for their responses)
- Can you tell me how you and your colleagues responded to specific challenges during the pandemic? (see section 6.5 for their responses)
- Can you tell me about your experience with decision making during the pandemic? (see section 6.5 for their responses)
- Can you tell me what lessons were learned from the COVID-19 experience by you and/or the Environmental Health Office? (see section 6.6 for their responses)

During subsequent discussions, participants were, where necessary, prompted with questions such as: “Can you remember examples of you and/or your colleagues –

- had to reflect on the value of previous experiences for this challenge?
- had to adapt existing practices to deal with a challenge?
- were forced be responsive (react in a positive, pre-emptive and risk-based manner) to a new challenge?
- were forced to collaborate with different stakeholders to deal with challenges?
- were forced to deal with different perspectives on problems and solutions?

Participants’ responses to the above questions were recorded, transcribed and analysed and are reported in the next section.

6.4 Lived experiences of challenges posed by the COVID-19 regulations on their ability to perform their functions

This section is devoted to describing real-life experiences of the participants by describing how COVID-19 regulations impacted the ability of environmental health officials to carry out their duties (see chapter 4). Evidence is drawn from participants responses to the interview question: Can you tell me about your experience of challenges posed by COVID-19 on the ability of your Environmental Health Office to perform its functions during the pandemic?

Following interviews conducted (see chapter 3), recordings were transcribed and analysed through a thematic data analysis approach. Information obtained is organised by using themes emerging from interviews. This section discusses emerging themes from the analysis of interview transcripts.

During the analysis certain patterns and themes emerged. These themes were colour coded and linked to specific environmental health functions (see chapter 4), challenges experienced to perform those tasks, and particular public administration capabilities (see chapter 2). This led to the identification of broad themes (see figure 6.2).

Further refinement of broad themes was done by applying a threshold rule of selection of themes where five or more participants responded using the same concept during interviews or in their naïve sketches. This rule ensured that the analysis was focused on the most relevant and significant themes in relation to the research question. In addition, when applying the rule, idiosyncratic and less common themes were automatically removed. Leaving behind only well-established themes that participants shared consensus on. Thereby increasing the validity and reliability of the findings. Finally, miscellaneous broad themes that did not make the five-quote threshold were highlighted and discussed due to their significant contribution and relevance to the study (see 6.6). Participant responses were coded to maintain anonymity.

For EHP's and SEHP's:

- Naïve sketches for example NS - A - EHP, NS - B - EHP, NS - C - EHP, et cetera.
- During interviews for example EHP01, EHP02, EHP03, et cetera.

For managers:

- Naïve sketches for example NS - A - MGR; NS - B - MGR, NS - C - MGR, et cetera.
- During interviews for example MGR01, MGR02, MGR03, et cetera.

The specific task and difficulties caused by the COVID-19 regulations are extracted and discussed under the interview question: "Can you tell me about your experience of challenges posed by COVID-19 on the ability of your Environmental Health Office to perform its functions during the pandemic?" This is followed by supporting quotes from Environmental Health Officials, which consists of EHP's and mangers responses.

Thereafter, how environmental health officials addressed the difficulty and overcame them will be explored. Interview questions: 'Can you tell me how you and your colleagues responded to specific challenges during the pandemic?' 'Can you tell me about your experience with decision making during the pandemic? 'Can you tell me what lessons were learned from the COVID-19 experience by you and/or

the Environmental Health Office?' The questions explore real-life experiences of environmental health officials which are presented in the form of supporting quotes which consists of EHP's and manger responses.

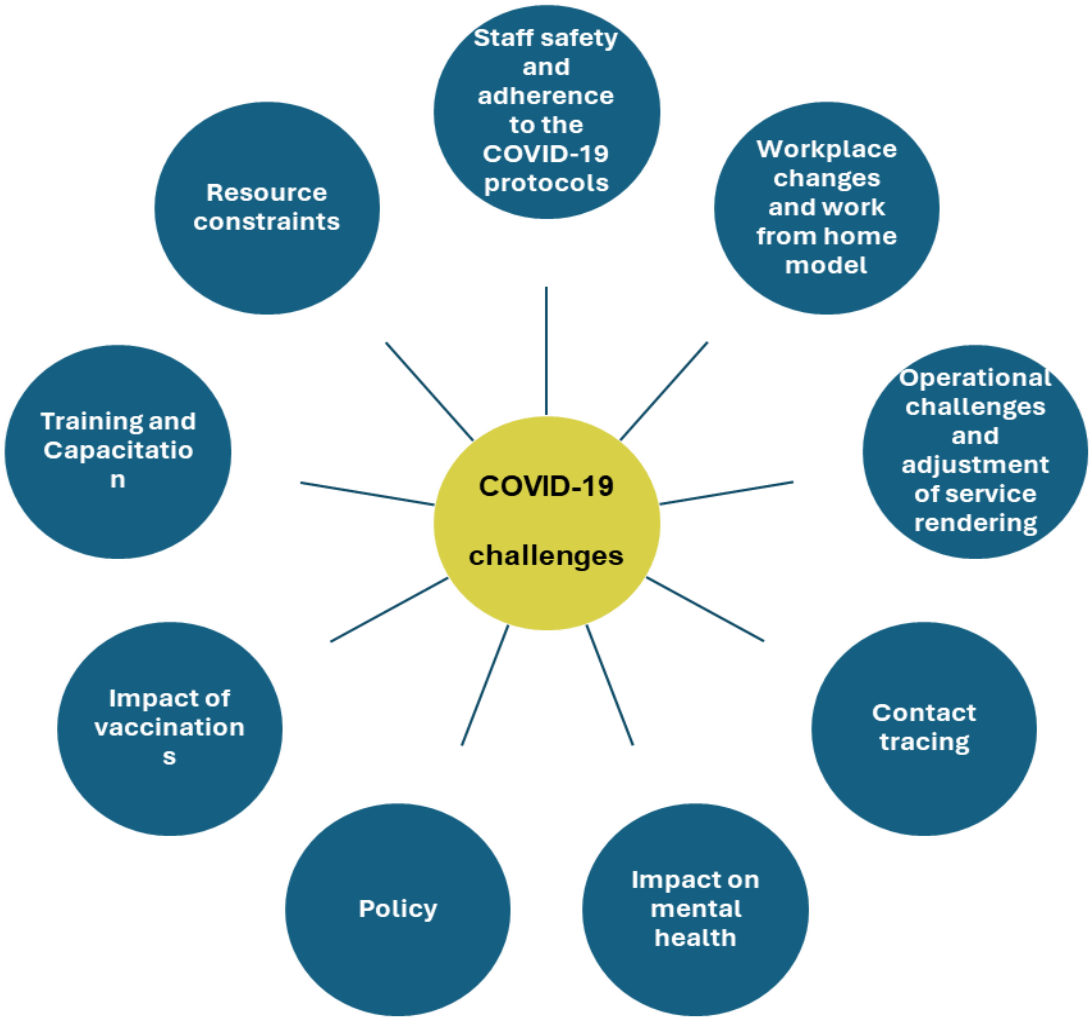


FIGURE 6 2: THE OVERVIEW OF NINE EMERGING THEMES

The question around decision making was exclusively directed at managers. These responses will act as a vehicle to establish if there are in in fact linkages to known public administration capabilities based on matching the characteristics and arriving at the most suitable public administration linkage per theme.

6.4.1 Staff safety and adherence to the COVID-19 protocols

The first theme which emerged from transcriptions is that of staff safety. Staff safety is a paramount requirement when rendering municipal functions at the coal face. On the ground adherence to COVID-19 protocols was a non-negotiable in keeping staff safe in the field and in the office environment. In turn this also ensured that the community was safe, as staff members could also be affected by the virus and transmit it while interacting with the public and rendering services. Managers were most concerned about this dilemma, this there were EHP's that felt that their safety was not prioritised.

Adaption and adherence to safety protocols by staff and simultaneously by the community came with its unique set of challenges. The existing staff safety risk profile increased due to the new factor of virus transmission that had to be considered. Therefore, going out in communities and rendering the service could no longer occur in the traditional manner. This is aspect is confirmed in the following quotes:

- "I think everybody was a bit concerned in terms of the **staff well-being**." (MGR02)
- "I remember having to go around in the areas with a loud hailer, so sometimes the logistics of that, **the safety of that.**" (MGR05)
- "**Public health safety**, it's finding that that middle ground and ensuring that, it's a win-win situation on all sides. I think that was **the biggest challenge** that I've had with regards to the functions that I was busy with at the time." (MGR02)
- "The question to ask is, **how safe are they** yet knowing that they are the ears and the eyes of the entire City"." (MGR12)
- "Due to the nature of our work, **engaging with people face to face** all of a sudden there was social distancing and the fear of contracting the virus." (NS - C - MGR)
- "The biggest issue for me was the **PPE and keeping my staff safe**." (MGR13)
- "**Staff [safety] was not considered** because we were just asked to go out and educate the community whereas there's no PPE." (EHP24)

Stemming from above quotes, staff safety and adherence to COVID-19 protocols posed a significant challenge for environmental health officials. Managers expressed concerns with the challenge of ensuring the safety of their subordinates during the pandemic. The most probable reasons for these feelings were the ease of COVID-19 community transmission coupled with a situation that felt entirely beyond their control. Compounding this, certain officials believed their safety was ignored because they were required to perform their duties for a period without adequate protective equipment, all while facing intense operational demands.

6.4.2 Workplace changes and work from home model

A second theme that emerged from transcriptions is that of workplace changes and the work-from-home model. Since the introduction of COVID-19 regulations, EHP's had to adapt their approach to work, especially focussing as it relates to adherence to COVID-19 protocols to keep the community safe. Similarly, a lot of these protocols were implemented at office level with the aim of keeping the staff safe. Essentially, environmental health officials had to practice what they preach. Thus, resulting in the task of reshaping environmental health workplace arrangements to be COVID-19 complaint.

The task of implementing and managing these arrangements, particularly working from home brought about certain challenges such as mistrust between staff and management, ensuring field work is conducted, eligibility and the inconsistency in implementation in certain offices. These challenges are expressed in the following quotes:

- "I'm even looking at internally, with staffing around **adapting your workspaces** to accommodate the social distancing, wearing of masks, the screening of staff members internally, so it cost us a lot, a lot of adapting." (MGR14)
- "Having **relocated our office or half of the staff**." (EHP05)

- “As COVID-19 progressed I was excused from doing COVID-19 contact tracing and also from entering a premises (due to having a comorbidity). **I was asked to work from home**.” (EHP08)
- ‘The only challenge is **other departments working from home** and we… still have to perform all our functions like normal.” (EHP40)
- “At some point the staff felt as if our concerns were being minimalized by the management. **Managers were allowed to**, for example, **work from home**, but then **some staff were not allowed to that same privilege**.” (EHP17)
- “The challenge of adaptation it was **very much possible to work from home** and do that, **but the micromanaging became very insane** such that it was better off to be at the office. All of us at the same time, which at some point I could say 80% of the staff got exposed at the same time, this could have been prevented.” (EHP27)
- “All the staff **were in the office**, some of them contracted the disease itself, which could have been prevented to say some staff can work from home and some can work from the office with a rotation.” (EHP38)
- “That **lack of flexibility** I feel especially due to health risk was very difficult for us to accept, but we had to accept that and this situation at times led to so much stress as well as work overload and many teams as that the EHPs in our office.” (EHP09)
- “Our department was not granted the **opportunity to work hybrid** in as much as we were essential workers but there are tasks that could be done remotely as 90 percent is doable remotely.” (NS - F - EHP)
- “We were **not allowed to work from home**, which would have decreased the exposure to each other.” (EHP37)
- “**Not everyone was allowed to work from home** up until colleagues started to spread COVID in offices, this resulted in lack of staff to perform functions.” (NS - L - EHP)
- “In terms of **working from home**, I would feel that there was a **lack of trust** in terms of management and staff on the ground.” (EHP21)

Quotes above allude to the formation of sub-themes such as lack of flexibility, perceived lack of equal treatment of staff and lack of trust. EHP's were forced to perform functions related to the mitigation of COVID-19. This required a considerable level of openness to alternative and flexible working hours to help minimise the number of staff at the office at any given time. Thus, decongesting the office space resulting in a risk mitigation measure and compliance with COVID-19 protocols. Work from home and alternating hours between groups of EHP's was implemented at certain offices at the prerogative of senior managers. EHP's that were not granted this option had to adhere to standard working arrangements (that is coming into the office daily). This resulted in perceptions by certain EHP's, one, of mistrust from management and two, absence of standardisation across service areas in terms of working from home and office arrangements. On the contrary, staff with comorbidities were allowed to work from home and were prevented from performing certain functions, for example COVID-19 contact tracing and entering of formal premises.

6.4.3 Operational challenges and adjustment of service rendering

Regulations posed specific operational challenges in the rendering of environmental health services. The aim of the COVID-19 regulations was to flatten the curve of infections by reducing and preventing infections and to provide direction in responding to the pandemic (see chapter 5).

This became the priority for Environmental Health Officials and was integrated with the existing functions of the department, with certain functions being temporally ceased and new functions included. The adjustments that had to made led to a host of challenges from an operational point of view.

More so, during community engagements and enforcement tasks that are inherently linked to a certain profession, where dealing directly with the pubic is standard in executing these tasks. Examples of these are traffic officers, law enforcement officers and building inspectors. Under normal circumstances there is no difference in the way EHP's do their work. They observed an increase in Disaster

Risk Management enforcement activities, accompanied by a noticeable urgency in overall enforcement efforts. As alluded to in chapter 5, (section 5.3.10), conducting health promotion interventions forms a crucial component of an EHP's work. Adhering to COVID-19 protocols and simultaneously raising awareness around COVID-19 was required. The complexity in fulfilling this task during a pandemic of this nature is the close contact that usually accompanies these interventions to get the messages across to the community. This type of community engagement was adapted due to the risk of transmission. The following quotes highlights these experiences:

- "Our **planned programmes were suspended** because schools, our ECD's and certain businesses were closed because of the lockdown. No normal training or inspections at restaurants or takeaways could take place." (MGR07)
- "Also **access to our municipal health services were restricted** and **no certificates** of acceptability could be processed. Complaints that had negative impact on health could not be attended to timeously because of the lockdown situation. All our health promotion and our social gatherings that were planned had to be cancelled." (MGR07)
- **"Some of our functions we could still carry on**. I'm looking now just at our scope in terms of water quality and monitoring, we still had to do that. We were busier now with the disposal of the dead aspect around the burials and protocols around the management of deceased." (MGR14)
- "The **focus areas** were more especially **vulnerable groups**, so that would be your old age homes and your ECD's and your clinics, including your, what's this transport interchanges, taxi ranks." (EHP37)
- "There were limitations. However, there was also now **additional responsibilities** given to EH." (MGR14)
- "Our work was neglected in terms of the nine functions, now we **focussing on COVID** and **the nine functions are going down** on the other side on the scale. We had to do something about this pandemic and balancing that was a huge challenge." (MGR08)

- “The fact that ECD’s **were closed**, building plans were closed (no being circulated), etc. A lot of the normal routine work.” (MGR06)
- “As premises started opening, owners were scared to open up for **EHP’s and also denied access** to us due to them being afraid as to what's happening or we closing them down and you know, so those sort of things then with regards to the workplace due to social distancing that had to take place within the workplace, it really resulted in a lot of challenges such as.” (EHP05)
- “Our **workload increased**… in addition to our usual everyday duties.” (NS - C - EHP)
- “We faced some **operational challenges**, so one of those challenges was the normal way of working that was disrupted and we could not, how can I say see to some sort of our **key performance areas we could not attend to** it because of the normal way of doing things was now totally a new way of working.” (MGR07)
- “The COVID-19 pandemic **presented significant challenges** to Environmental Health Department, impacting our **ability to perform** essential functions such as Public Engagements and public health monitoring.” (NS - E - EHP)
- “Due to social distancing, it was a bit **more challenging** to go out into the community.” (NS - K - EHP)
- “We **weren't able to perform our functions fully**, but we had to really redirect our focus in terms of COVID-19.” (MGR14)
- “There was **a lot of pressure** on EH, because now we had to do assessments.” (EHP02)
- “**Health education** in front of the groups we are **afraid of contracting the disease**, especially before the mask and the social distancing protocols were implemented. We had to go out physically, so that was a challenge for us.” (EHP38)
- “Challenges were mostly our **clients refusing entry**.” (EHP33)
- “**Refusing entry** from premises.” (NS - G - EHP)

- “The biggest challenge that I experienced was the **unavailability of many other departments** during COVID.” (EHP31)
- “**Getting out of the sister departments** was actually a challenge.” (EHP40)
- “**Unable to collaborate** with other relevant stakeholders.” (NS - A - EHP)
- “The **informal settlements. It was the overcrowding**. They made it difficult to enforce. Because it was hard for them, difficult to implement their hygiene and the distancing because of the overcrowding in the informal settlements”. (EHP26)
- “Another challenge that we had is that we were doing **funeral monitoring’s**. So, you get that there's a lot of people in the graveyard and most of them don't have their masks on. So, we're also exposed and it was very **difficult to enforce compliance**, especially on the on the families because they wanted to be closer to the coffin.” (EHP23)
- “That **lack of flexibility** especially due to health risk was difficult to accept”. (NS - F - EHP)

To meet the operational demands of the pandemic in conjunction with the routine of Environmental Health work, environmental health officials found not being able to fulfil their routine responsibilities challenging. There was a great deal of task shifting and focus placed on the COVID-19 crisis, resulting in some of the nine functions (see 4.3.3) being partially neglected. Emphasis was placed on health education in communities as a measure to educate the public for people to make safer choices and adhere to set safety protocols. Obtaining cooperation from other departments was at times challenging in harnessing collaborative and transversal approaches. In certain instances, clients refused EHP’s entry to their premises, adding an additional challenge as premises that could not be accessed cannot be adequately inspected. Enforcement of disaster management protocols was challenging in certain areas, example in the cemeteries where people wanted to be close to their deceased and loved ones. Certain staff alluded to management not being as flexible as requested by EHP’s when it came to operational adjustments.

6.4.4 Contact tracing

The new task of contact tracing proved to be a significant challenge during the early stages of the pandemic. This had a direct impact on staff safety as offices approached this task differently, either by physically going out into the field or conducting it telephonically.

Although contact tracing was not a new concept for EHP's when investigating notifiable medical conditions, the potential exposure to the virus while conducting physical contact tracing loomed and instilled fear within EHP's. This resulted in the reluctance initially to do the job due to the transmissible nature of the virus. Additionally contact tracing also diverted EHP's from their regular duties. This is captured in the following quotes:

- "We **investigated suspected cases** and we were a part of contact tracing." (MGR07)
- "Environmental Health were very deeply involved with contact tracing in the initial stages of the pandemic and I can imagine that **drew them away from a lot of the more routine inspections** like informal settlements, looking for health hazards, etc." (MGR01)
- "Normal stuff like the **outbreak response was normal business** for us and it wasn't anything new, it was **just the scale of it**." (MGR06)
- "Was actually quite difficult and environmental health colleagues had particular challenges because they were the ones who were **going out into communities** and doing the contact tracing." (MGR11)
- "When we had to do contact tracing literally at the beginning where you were also **scared of** going near the case because you wouldn't know if you would **be infected**." (EHP37)
- "The other challenge was also getting a hold of the contacts and in the beginning, I recall when we took thermometers to the contacts and patients and then collecting it afterwards. So, the **direct exposure**." (EHP40)
- "We were directly involved in **contact tracing for a lot of cases**." (MGR14)

- “When it came out that EHP’s must do contact tracing. I **don't think anybody was very willing**.” (EHP02)
- “There were **some staff members that were a bit hesitant and reluctant** to follow up on COVID-19 cases.” (MGR08)
- “The huge impact was the fact that time was taken away from us in terms of doing contact tracing, as this became the priority and it **added so much workload**.” (EHP09)

Contact tracing was not an unfamiliar to EHP’s. Although physical contact tracing during a crisis with the volume of incoming cases and a likelihood of contracting the virus was a challenge. The risk associated with the daunting task of physical contact tracing was exacerbated by the additional task of dropping off and collecting thermometers at suspected cases.

This caused unwillingness from certain staff members due to the inherent safety risk that comes with the job. Certain EHP’s were fearful due to the risk of contracting the virus and not knowing when they were infected.

6.4.5 Impact on mental health

The heavy workloads, new duties, and persistent unknown factors greatly contributed to poor mental health and well-being among staff. This led to employees in these high-pressure environments facing elevated stress and related health issues. As the virus was novel, EHPs first had the critical task of fully grasping the nature of the threat. Their collective and greatest fear was catching and dying from COVID-19.

Coupled to that was a fear of own families contracting the virus through them. This fear of the unknown and hardship experienced is illustrated in the following quotes:

- “A major challenge was **not knowing the nature of the beast** that we were trying to control.” (MGR11)
- “The challenge for me was that it was **unfamiliar territory**, it was trying to navigate through the COVID-19 regulations.” (MGR02)

- “The challenge was the **COVID-19 was new to us**. We had so much **anxiety and the fear** of working in the areas as well.” (EHP38)
- “It was very challenging to perform most of our functions due to restrictions and the **fear of the unknown**.” (NS - G - EHP)
- “Obviously in the beginning it was a lot of **confusion**.” (EHP14)
- “It was a **trial and error** to everybody. Nobody knew exactly what he's doing. It's a new disease.” (MGR10)
- “Colleagues losing **family members and were fearful**.” (MGR08)
- “Staff's **nerves were shot**.” (MGR13)
- “We **felt that we were undervalued** and it was overwhelming at times.” (EHP09)
- “We had to perform our functions in **unknown circumstances**.” (MGR08)
- “I would say **mental health was the challenge**, if we can call it that because I remember I was one of the EHP's that contracted COVID and when I had to go back to work, my **fear** was actually going back into the community and **contracting it again**.” (EHP19)
- “There were certain **staff members that I knew really couldn’t take it**. At one point **death became a common**, which is not normal.” (MGR08)
- “You know, dealing with the pandemic, we had to deal with our, you know, our family saying look, we need to go out and do this. So, there was a **little bit of mental health challenges**.” (MGR02)
- “I experienced **fear and anxiety of the unknown** and also fear that as an EHP I didn't pledge serving the community to **my own detriment**, which was expected at the time. I also contracted COVID twice at work and experienced severe long term with symptoms.” (EHP04)
- “We didn't know how **vulnerable** we were as individuals and how vulnerable individual staff members were and their families and so not everybody wants to be a hero actually. Although we signed up to be health workers, we didn't necessarily find saying that we would, you know, we are **prepared to die for the cause**.” (MGR11)

- “It was about **how quick can you come back**. So, you come back, but the mind is still not right and you are expected to save other lives while your mind is not really OK. So yeah, it was a bit challenging.” (EHP07)
- “Your mental health was also affected and **I don't think management even considered or took that into consideration**.” (EHP01)
- “**Management still expected us to go out** in the area to do what is expected from us.” (EHP04)
- “There was a scare from the team itself. They were feeling very **depressed, very scared.**” (MGR04)

The virus's harmful effects caused a complex range of negative emotions among environmental health officials. This is evident in participant’s compelling retort on mental health challenges experienced (see 6.4.5). Fear, anxiety, confusion and vulnerability were some of the feelings experienced by environmental health officials. Upon exploring the challenge of mental health led to the emergence of four sub-themes which are novelty, fear of the unknown, uncompassionate leadership and pledging of one’s life for the cause. Due to COVID-19 being a novel virus staff expressed inter-alia, anxiety. Staff in certain offices indicated that emotional and phycological support from management in dealing with the mental health challenge was lacking. Leading to the feelings of abandonment and being ‘undervalued’ at the time when management support was needed most. Certain staff alluded to the fact that they did not pledge to put their lives on the line for the profession.

6.4.6 Policy

Policy instruments set out priority areas, how work is to be performed and roles and responsibilities. The Environmental Health service was inundated with new legislation and guidelines that required interpretation and action (also see table 5.2 (a)) as a task. New directives were published at a remarkable rate, meaning interpretation and enforcement tasks had to match that rate, which was challenging. Vagueness and overlapping legislation added to the challenge. This added a considerable amount of pressure on Environmental Health Officials to perform under rapidly changing legislative contexts.

Disaster Risk Management was accountable for COVID-19 directives, yet on the ground enforcement activities were executed by EHP's. Policy challenges brought about by COVID-19 can de deduced from the following quotes:

- "Another one of the challenges was just that there were **lots of different policies coming through** and sometimes the policies overlapped in terms of their scope. It was quite difficult to keep track of which policy we were applying in which situation." (MGR11)
- "There was a there was a **lot of information coming from various avenues**, you know, National Department of Health." (MGR05)
- "Little was known about the disease, and I know that we **almost weekly received that directives in terms of changes**, as the disease was emerging, new things that came up." (MGR14)
- "EHP's **had to rapidly assimilate many directives**, circulars and scopes in their routine functioning. Often, directives from national were not clear and considerable." (MGR07)
- "Sometimes a lot of the **protocols were vague** on things nobody thought about." (MGR13)
- "The government, at least at some point, they did **implement some regulations and guidelines for COVID-19**. Even the management did a little bit of something to guide us of what needs to be done, but the reality is we're just expected to get the job done." (EHP38)
- "What was a challenge is you **had to keep up to date with the latest advisories**, guidelines and directives that came out. There wasn't a day or night that you could go to bed without having seen there been a latest update because things were changing quite quickly." (MGR05)
- "With regards to the new regulations that was being promulgated or put into force in terms of the disaster management. What is important is **how it was communicated with staff** and why you were making a certain decision. It wasn't a decision made just because it had to be made or because you were told to make it. It was a decision made based on factual information." (MGR02)

- "Departments like your Disaster were the **custodians of the legislation**[8], but you would find EH being the ones that are actually pushing (exerting effort to complete work), you know the implementation of such legislation." (EHP13)
- "From a national government perspective, the **legislation changed so frequently and so rapidly and so ridiculously** in my opinion." (EHP12)

Policy challenges comprised off two primary challenges. One, the volume of regulations and guidelines that were received by environmental health officials during the pandemic (see table 5.1). Two, the lack clarity in the official documents received, in particular national governments documents. EHP's were required to constantly familiarise themselves with these documents within a limited timeframe. This was due to the number of official documents required to be absorbed by Environmental health officials, they received new legislation at minimum, weekly basis. Which put a lot of strain on EHP's in the field and at the office.

6.4.7 Impact of vaccinations

Vaccinations were introduced to assist with limiting the virus' spread in the community and to protect individuals from falling severely ill by building immunity to the virus. The task regarding vaccinations were two-fold, one being, staff members taking the vaccination and two, EHP's promoting the vaccine for community uptake. The challenges were resistance to vaccinate by certain staff members and EHP's feeling pressurized to vaccinate. Further, EHP's were required to promote the vaccination in communities where uncertainty existed that was linked to vaccination which resulted in a challenging task.

The following quotes features this:

- "I remember when we when it was time for COVID vaccine. It was **almost forced on colleagues** and when some of the colleagues did not want to be vaccinated, they were now labelled as 'anti-vacciners' and they were not against vaccinations, but they never wanted to vaccinate themselves." (EHP37)

[8] The regulations were promulgated under the Disaster Management Act, Act 57 of 2002. The research participant is referring to the internal Disaster Risk Management (DRM) Department as being the primary enforcers of these regulations.

- “There were collaborations, but I feel like **EH became like the face for COVID vaccinations** and working with PHC where we had to promote people getting the vaccines.” (EHP14)
- “I think that that **uncertainty** was because it was a vaccine that that was **developed in in a very short space of time**.” (EHP21)
- “For me it came down to forcing some of the staff. Not me, **some of the staff felt that they didn't want to take the vaccine**.” (MGR11)
- “I'm one of the people who never vaccinated, but they (management) would say one thing. No, we are not forcing you, but the actions and the behaviour was not saying the same thing like the **updates that we had to make every time on your status of vaccination. There was pressure**, low key.” (EHP35)
- “I remember during COVID-19 there was a period where I was where I was acting and the **pressure for staff to take the vaccine**.” (EHP22)

Vaccinations proved to a contentious topic during the COVID-19 pandemic period. Certain environmental Health officials insinuated coercion from management into taking the vaccination. The dilemma faced was that EHP’s on the ground were required to promote the vaccine at community level, however certain staff were not willing to take the vaccination themselves. Further to, EHP’s quickly became the face of vaccinations across the city, this with the undertone of doubt in the vaccine due to the short period in which it was developed.

6.4.8 Training and capacitation

Due to the novel nature of the virus and its severe impact on public health, environmental health officials made a concerted effort to capacitate themselves to be equipped with the relevant information relating to COVID-19 (task). The training of staff on new protocols was challenging at the onset. Environmental health officials were forced to rapidly engage with virtual tools for training and meetings (challenge) which was a new concept at the time, as evident from the following quotations:

- It was not the normal run of the mill, there are other things at play, thanks to the City that we had the opportunity for the **Change Management** experiences and **leadership training** before COVID." (MRG08)
- "We were also **unable to attend face to face trainings and meetings**." (EHP33)
- "Capacitation because COVID was new, everyone did not know, **we were all relying on social media or experience** and yeah, at that time when you expected guidance from your management or your senior colleagues, there wasn't any. Basically, it felt like that because also they didn't know, but you were just expected to go out and perform duties." (EHP37)
- "**Training of staff** on these strategies **were sometimes chaotic** at first." (MGR07)
- "**Training on new legislation** in acute situations, I think is also **challenge**." (MGR01)

Finding the correct information to capacitate the staff proved to be a challenge during the crisis. Staff had no basic knowledge of COVID-19, therefore had to quickly familiarise themselves with the relevant legislation and guidelines (see 6.4.6). EHP's sought guidance from manages, who were also had not knowledgeable or lacked understanding of the new virus and protocols set out. On the other hand, certain managers fortunately received training previously, which came in handy.

Since conducing training in a physical venue was out of the question, staff had to adapt to online platforms as a mechanism to share and obtain new information. This was safest way possible at the time.

6.4.9 Resource constraints

Rising to any pandemic, especially a pandemic of the magnitude of COVID-19 requires a wealth of resources. Having a strong workforce to execute tasks associated with COVID-19 to complement usual EH functions was challenging in midst of overall resource challenges. Agenbag and Balfour-Kaipa (2008) believe that environmental health services are mainly service delivery orientated and

heavily reliant on human resources to render this service. Additionally, and having and the availability of personal protective clothing (PPE), in particular face masks were the scarcest commodity during the early stages of the COVID -19 period. This is depicted in the following quotes:

- "With the **limited resources** in terms of staffing, they had to stretch themselves and also work overtime, because as it is, they (EHP's) where needed everywhere. Everything comes down environmental health". (MGR10)
- "**Capacity was a significant challenge**" (MGR01)
- "We had a challenge that **most of my colleagues were exposed to COVID-19**, so we're **short staffed** to perform the functions in the community." (EHP39)
- "So I was sick. The team was sick, we were on and off. There was **a lot of absenteeism in the office**. There was a lot of pressure on the work itself now, because we have staff shortages." (MGR04)
- "At one point we had a **third of our staff were all sick**, all sick at the same time." (MGR11)
- "At the beginning some of our staff members had to go out **without the PPE**. We had to look at PPE, that didn't come quick enough." (MGR13)
- The **nurses was basically fully clothed with PPE**. We were expected just to go out and like, engage and basically put yourself out there." (EHP10)
- "We had go the area like **without the mask and stuff**." (EHP24)
- "The biggest issue for me was the PPE and keeping my staff safe." (MGR13)
- "There was a challenge in terms of **equipment and protective clothing**, yet we received that later on." (MGR10)
- "With regards to the PPE because there was such a **shortage of PPE** being the masks and hand sanitizers" (EHP05)
- "**Not all EH staff had laptops**, in that 'not everybody had PCs.' This hampered certain EHP's in fulfilling administrative tasks and keeping up to speed with the latest directives published. Most management staff attended to work afterhours." (MGR06)
- "I mentioned resources, we were **less resourced at the time**." (MGR04)

- “We had a **lack of resources** and there was no action plan from management to guide staff, causing vulnerability.” (NS - B - EHP)
- “**Community members** in informal settlements would expect or maybe **request resources from us** that we couldn't provide. We'd be telling them about masks and hand sanitizers, social distancing. It is overpopulated, people are unemployed, and the things that we are telling them that could assist them to prevent transmission of the disease is resources that they expect from us.” (EHP36)

Stemming from participants responses, the resource challenge appeared to have two parts. One was the staff issue, where staff members fell ill due to contracting the COVID-19 virus and were off work in isolation for eight to eleven days. Certain offices felt the strain on their human resources, with more than 50% of staff booked off sick at a point in time during the pandemic. This had a negative influence on the ability to execute their duties. The second aspect was that of the shortage of personal protective clothing (PPE), particularly face masks which was a crucial mitigation measure. Not being provided with face mask during the early stages of the pandemic was very demotivating and impacted them psychologically (see 6.4.5).

6.5 Lived experiences of capabilities to overcome challenges

This section reports on capabilities environmental health officials showcased to address the challenges brought by COVID-19 regulations (detailed in Chapter 5). This description is derived from participant’ answers to the following two questions: “Can you tell me how you and your colleagues responded to specific challenges during the pandemic?” and “Can you tell me about your experience with decision making during the pandemic?”

Their responses to these questions were analysed and interpreted through the capability lens (shortened as the “six R’s”) as reported on in Chapter 2 and illustrated in Figure 6.3.

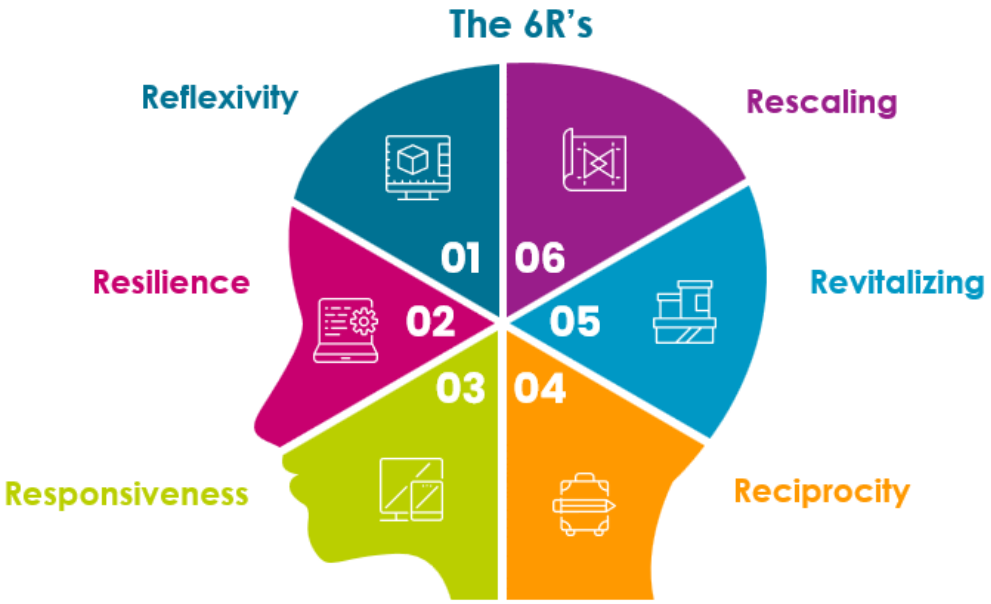


FIGURE 6 3: AN ILLUSTRATION OF THE PUBLIC ADMINISTRATION CAPABILITIES (“SIX R’S”)

6.5.1 Overcoming challenges through reflexivity

The public administration capability of reflexivity in the context of addressing problems refers to as “being hard to pin down because people disagree about the formulation of the problem” (Termeer et al., 2016: 13).

It is the ability to look back and learn from previous and existing experiences (see 2.4.1) and considering different frames of the problem and even providing for ambiguity in understanding the problem and possible solutions (Termeer et al., 2016: 14).

Participants revealed that certain adjustments were made in the approach to work in order to overcome safety and operational difficultness that presented themselves. Staff were given a platform to raise concerns and discussions were held on available safety protocols set out by all spheres of government to address safety concerns. Although in some offices, staff felt forced to execute their functions with limited safety resources.

COVID-19 introduced a new model of working by looking at international trends and best practices, some of which were implemented by the City of Cape Town during the pandemic to address the staff safety risks. Environmental health officials looked back at previous experiences, took actions that were based on facts to overcome some of the challenges, for example standing at a safe distance from the community when conducting contact tracing. Staff capacitated themselves to be able to make informed decisions. Certain managers consulted with staff to tap into their collective knowledge to address certain challenges. This approach enabled functions to be executed in the safest possible manner while taking note of COVID-19 protocols that were set out. Quotes below portray reflexivity:

- "First is to ensure your safety as an individual and also the safety of staff. There were **certain protocols that you had to follow** to ensure safety and those protocols were followed." (MRG02)
- "Even when you walked into something, not knowing anything about it, **you walk out the other end being an expert about it**." (MGR13)
- "Understanding the virus, understanding its movement, transmission signs and symptoms. **How do I protect myself**?" (EHP02)
- "The challenge of safety, also during the public participations that we had and I'm referring to the ones where it was Sub-Council offers that was part of it and the Public Participation Unit as well as Disaster Risk Management and Law Enforcement. That is where we would basically **choose a designated route** and then through the loud hailers[9] educate the public." (EHP21)
- "Sitting on the round table with everybody and **deliberating or discussing**, you know what it is and what the concerns were. **Then looking at what mechanisms was put in place** from a national, provincial and local government point of view in terms of staff safety." (MGR02)
- "I **involved all staff** when we developed safeguards or protocols for our office." (NS - B - MGR)

[9] Also known as a megaphone, is a portable device that amplifies a person's voice to make it louder and more easily heard over a distance. Commonly used for public announcements and addressing large groups outdoors.

- “Staff were required to quickly **adapt to online learning**. People didn't know how to do that in the beginning.” (MGR06)
- “We had to **get used to the digital platform** at that time because prior to that. meetings and stuff all was like face to face, so that that was a good thing.” (EHP11)
- “There was a lot of online trainings made available via various platforms, Technikons, Universities, HPCSA and everything that you could we get to expose all your staff, get the training into them and the more we could train them to relax, the more that they could see what's going on and how to clean the office. I had to take charge with that and the staff followed suit.” (MGR13)
- “As time went by and we **received training and education and we became, we became less afraid**.” (EHP08)
- “The more education we got it (fear) subsided and eventually we tried to actually stay positive, and we had to adapt as much as we could.” (EHP09)
- “EHP’s are **not immune to dealing with notifiable medical conditions**, so the protocols would have still been the same was TB, hepatitis A or Legionnaires. It's just with COVID-19 there were certain protocols, social distance, wearing of a face mask and sanitizers.” (MGR02)
- “We are used to investigating and **interviewing people for notifiable diseases** but **this was something different**.” (EHP11)
- “**Looking at the global trends** in all of those things. So, **lessons learned** from me during COVID-19, it gave rise to new ways of working.” (MGR12)
- “**Remote working** to reduce transmission amongst colleagues.” (NS - A - EHP)
- “We **made decisions a lot as a team**, so **drawing on the wisdom of the team**. We made decisions **drawing a lot on our previous experience**.” (MGR11)
- “We **relied on each other** for advice and help to tackle various situations.” (NS - L - EHP)
- “We would have review sessions like on a Monday we'll come in we'll get the **number of premises that we're done**, any challenges that we're raised and then we will discuss like we've said that there was also rapid change in

legislation so we'll **discuss how we apply the changes in the legislation**." (EHP13)

- "I suppose there was, you know, you have a **lot of theory** with regards to outbreak response infection prevention and control." (MGR01)
- "Contact tracing, you know all these things, a **lot of theory, but actually to adapt it to such a large outbreak and you know something that we've never experienced before.**" (MGR01)

The above quotations indicate that environmental health officials demonstrated reflexivity during the COVID-19 pandemic by continuously learning, adapting and reflecting on their practices to enhance response effectiveness.

They prioritised staff safety through adherence to protocols and collaborative deliberation internally and across the various spheres of government. Reflexive practice thus enabled them to develop innovative, informed and resilient approaches to managing the pandemic's complex challenges.

6.5.2 Overcoming challenges through resilience

Resilience (see 2.4.2 in Chapter 2) has shown to be a common capability experienced during the COVID-19 pandemic by participants interviewed for this project. Termeer et al. (2015: 689) refers to resilience as the "capability to adapt flexibly to uncertainties and the constantly changing conditions surrounding wicked problems". Furthermore, it refers to the ability to address "the inherent uncertainties and inter-connectivity's surrounding wicked problems" (Termeer et al., 2016: 14). Adaptability was the mechanism most utilised to overcome challenges posed by the crisis.

This was identified and prominently illustrated in the way the environmental health officials responded to the new challenge of COVID-19 within three themes, namely staff safety and adherence to the COVID-19 protocols, operational challenges and adjustment of service rendering and human resource challenges.

The implications of new regulations and guidelines on staff safety were significant. Therefore, the practicality of going out in communities and engaging in the 'normal' manner was forced to change in order to ensure staff safety. Management officials prioritised staff safety and measures were put in place to ensure that staff were as safe as practically possible while executing their functions. Staff safety had a direct correlation to operational challenges faced by environmental health officials. Staff demonstrated flexibility and teamwork to address challenges by making certain changes to their service approach. These changes originated from management decisions and the EHP's adherence to the safety measures which were guided by respective protocols and guiding frameworks.

Finally, certain staff that did not perceive themselves as being resilient found out that they in fact possess the trait by means of reflecting on the way they responded to the COVID-19 challenge.

Quotes below allude to how the safety, operational and human resource challenges were addressed, portraying resilience:

- "Me as a manager in that office, I had to **be strong for the team.**" (MGR04)
- "Our staff all got infected at that point. **Staff were quite resilient** and I take my hat off to them for how they worked." (MGR13)
- "By adjusting some of our processes. So **we had to adapt** as much as possible to make it work for us." (EHP09)
- "I saw how tough staff can be and how resilient I can be. No problem is too big or too complex, we'll sort it out." (MGR13)
- "Something that I also experienced was that resilience from EHP's came up strong, that they were resilient and a difficult situation. They had to make ends meet with the limited resources." (MGR10)
- "On the fly as we go along, we will try and resolve issues and in that aspect, I think EHP's are a resourceful and resilient." (EHP12)

- “Teamwork was found to be a resilient factor. With teams who work together effectively achieve the common goal and function better. We are proud of the achievements.” (MGR07)
- “Bits of policy and legislation as it came and the need to kind of adapt quickly.” (MGR01)
- “The EHP’s was very resilient, and we were expected to take the lead.” (EHP10)
- “What was the standout for me and it's not really a lesson but the resilience of EHP’s.” (MGR05)
- “EHP’s generally are resilient because we adapt to different situations all the time.” (MGR02)
- “EHP’s are resilient because we always tend to figure out things how to do it because that is what we had to do. There wasn't a clear cut, listen, you're going to do this. Step one to 10. No, when the EHP’s was out in the field they had to figure out.” (EHP11)
- “This just showed us again that EHP’s are very, very resilient and very flexible no matter what situation we get thrown into. We always we rise to the challenge, and we end up making a success of it.” (EHP19)
- “We didn't [as usual] necessarily go outdoors to go and find the contacts. What we did was, we called the person and they asked all the questions. We completed the task [contact tracing] in that.” (EHP22)
- “We tried to be **as innovative as possible**.” (NS - B - MGR)
- “Having to… **protect communities** without having a **full knowledge base** that we required at the beginning of the of the pandemic.” (MGR11)
- “Technically all environmental health services were suspended, and then we're **focusing on COVID**.” (MGR10)
- “Community outreaches could not be done the usual way by gathering a large group of people, because group gatherings were not allowed. We **had to find alternative ways** to try and get our work done.” (EHP08)

- “I still remember, I mean going to do inspections at cemeteries on Saturdays when they do funeral services to make sure that people were following protocol as they should.” (MGR05)
- “I **learned to be resilient**; I learned to **thrive in that pressure**.” (MGR04)
- “We **never give up** the fight; we had to soldier on and come back despite all those things.” (MGR10)

The quotes above illustrate that environmental health officials demonstrated remarkable resilience during the COVID-19 pandemic by adapting constantly to change, with limited resources at times and working in high-risk conditions.

Managers emphasised the importance of staying strong for their teams when staff were infected or overwhelmed. EHPs showed adaptability by revising work processes, finding innovative ways to conduct inspections and contact tracing and continuing essential services despite lockdown conditions. Officials learned to thrive under pressure, solve problems creatively and “soldier on” to overcome challenges posed by the pandemic.

The novel nature of the virus sparked fear within environmental health officials. The mental strain on staff built certain coping mechanisms that were required to address mental health challenges. Communication and the strong sense of teamwork were used to address the mental health challenge.

Quotes below indicate how mental health and the unknown nature of COVID-19 were overcome, portraying resilience:

- “In our office, **we supported each other** through informal check-ins and debriefings” (EHP26)
- “**Team effort**, faith within each other, looking out for one another. **Supporting each another**, mutual understanding.” (NS - D - EHP)
- “It was a great **team work with different inspectors**.” (EHP20)

- “We **worked more closely in a team** as we only could rely on each other to get us through the challenge. We trusted and looked out for one another and supported each other during that difficult time.” (NS - B - EHP)
- “We utilised each other's things and generally we all have specific areas but we worked over each and everybody's areas, so **that support was the manner in which we overcame**.” (EHP02)
- “Thankfully most of the **colleagues knew they had the mandate**, with fear. All were psychologically, physiologically affected, from management right down to the staff.” (MGR08)
- “**Resilience and dedication**, despite risks and emotional toll, **we remained committed to public service,** often going beyond our job description.” (NS - C - EHP)
- “It was **mentally challenging,** but we survived it.” (NS - K - EHP)
- “The only thing like I said, which the colleagues already said it was that fear. Once that subsided, it made it much easier. **So the adaption was easy based on the fear subsiding.** Our profession, it sort of forces us to always be **adapting** to this and that.” (EHP09)
- “We are also just human beings, we also had fears, and **as a manager you have to stand tall**, although you put out that front, you are also afraid and concerned, if something happened to your colleagues, you would **feel the pressure**.” (MGR08)
- “As time goes on and the **support that you give them** along the way with the relevant legislation, they **became more comfortable**.” (MGR02)
- “You needed to **keep supporting the staff emotionally**, but also you know we had a job to do and then to ensure that, that job is done to the best of our ability.” (MGR05)

6.5.3 Overcoming challenges through responsiveness

Responsiveness refers to “the ability to respond in a legitimate manner to continuously changing agendas and public demands” (Termeer et al., 2016: 15). As the Environmental Health Service was classified as an essential service during COVID-19 according to (Co-operative Governance and Traditional Affairs, Department 2020: table 1), this service had to constantly respond to the new and changing challenges posed by the COVID-19 pandemic. The challenge of service operations during the crises led to environmental Health officials being forced to make changes to their operational approach to respond to the pandemic. The work plans and service package were modified to align and comply with the COVID-19 protocols and guiding documents. A risk-based approach was the golden thread that ran though most decisions and adjustments made at the time. As a collective the environmental health officials responded in a positive manner and stepped up to the challenge of COVID-19. A crucial component to any public health emergency is health promotion and education.

Especially when person to person transmission of a pathogenic organism like COVID-19 can occur easily and rapidly. Health promotion operations are scaled due to the dire need for intervention at community level. Conveying the correct messages to the correct target audience was the objective. The following quotes displays the responsive nature of environmental health officials at the time:

- “The **functions were reduced**. In terms of, you know, the routine inspections etcetera, where the EHP’s used to go out, maybe the frequency of inspections, let's say.” (MGR05)
- “We relaxed on those nine functions and **focused more on the COVID-19** function.” (MGR08)
- “We **have to be on the frontline**, we have to go through, we have to inspect, we have to investigate, we have to communicate directly.” (EHP14)
- “There were **certain functions that fell away**, but there were **certain functions that was highlighted**. Obviously, tracking and tracing, which is

communicable disease investigations and as well as disposal of the dead." (EHP14)

- "We **scaled back on the routine work**." (MGR11)
- "Health promotion also whereby we **collaborated with other departments,** and we did their loud hailing on the communities like the informal settlements and then we also used to go to the malls as well and then we did the education." (EHP24)
- "Staff found value in **loud hailing and local health promotion activities** messaging was a key driver in behavioural change." (MGR07)
- "Basically, just standing on the outside and then, doing the interview at a safe distance (during contact tracing)." (EHP21)
- "Protect ourselves and colleagues by **taking medication and vaccinations**." (EHP08)
- "Advising or encouraging other colleagues to **take the vaccination**." (NS - G - EHP)
- "I would say from my side it was the teamwork, that we were able to **respond to specific challenges**." (EHP24)
- "The team that I managed, **we gelled and knew what we had to do**, I was that fortunate." (MGR08)
- "I was pleased to work with some fantastic people still working with them and the thing is that we **had each other's backs when there was changes in the regulations**." (EHP15)
- "We **worked as a group**. We supported each other with most of the tasks." (NS - G - EHP)
- "When things went wrong the next one was blamed. You made the wrong decision, finger pointing, I felt that **we had to do with deal with it better**." (MGR08)
- "You just **have to make the best of it,** and you make the call." MGR13)

- “We all **wore our cloth masks at all times and practiced safe distancing**.” (NS - B - MGR)
- “Having to make **practical decisions** about how to keep staff safe.” (MGR11)
- “We **further implemented two "shifts"** in the office where only half of the staff is allowed to enter the office from 08:00 - 12:00 and the other half during 12:00 and 16:00.” (NS - B - MGR)
- “The colleagues were **not reluctant**; they were prepared under the circumstances.” (MGR08)
- “I think environmental health plugged a lot of gaps during COVID it wasn't necessary their responsibility **but really responded well**.” (MGR01)
- “What we learned during post COVID is the **importance of preparedness and rapid response**.” (EHP07)
- “Services opened up gradually and as it opened up gradually, it's just how we **adapted** to ensure that the service was still done.” (MGR02)
- “To certain extent, they had to make a decision on their feet, because not everything was formal, we had to make informal decisions to **cope as the situation prevails**.” (MGR10)
- “I **reached out to somebody** I knew w**ho could make stuff for us so she made us a whole bunch of masks**. It might cost, but my staff is everything to me. So we got the mask, staff was happy and we worked with that for about a month and a half before the masks actually arrived.” (MGR13)
- “**Health promotion was intensified**.” (MGR10)

The above quotations illustrate that during COVID-19, environmental health officers showed responsiveness by reducing routine functions and prioritising key tasks like, inter-alia, contact tracing and disease control. Other routine functions were significantly scaled back to redirect energy and resources to the emergency at hand. Managers adapted quickly by making informal decisions and protecting staff through arranging for PPE, vaccinations and in certain instances implement a “shift”

working system when in office. EHP's in turn adapted their operational approach by making key changes to keep as reasonably safe and simultaneously ensure service continuity. These officials demonstrated the value of preparedness and rapid response.

6.5.4 Overcoming challenges through reciprocity

The capability of reciprocity refers to public officials' ability to connect or collaborate (Wessels, 2024: 21) with the purpose of achieving a common basis of understanding (see 2.4.4 in Chapter 2). Head and Alford (2015: 728) emphasise the necessity of trust among collaborating role-players for harnessing collaborative arrangements.

In the case of the city of Cape Town, the Environmental Health Department was forced to collaborate with a multitude of stakeholders, both internally and externally which allowed levering off resources and knowledge which strengthened the overall public health response to the pandemic.

Internal collaborative work between Primary Healthcare and the Environmental Health sections drastically increased, resulting in a more cohesive approach to address challenges faced. Furthermore, this dual viewpoint between preventative and curative pillars of healthcare resulted in comprehensive decisions making and service provision.

Environmental Health officials partnered with sister departments such as Occupational Health and Safety, Public Participation Unit and Disaster Risk Management. External collaborative work was seen in the partnership formed with external stakeholders, for example, Doctors Without Borders (Medecins SANS Frontieres) and the Community based COVID Command Council. This can be seen in the following quotes:

- "A lot of **consultation** with your health and safety department." (MGR13)
- "In our response we had some sort of **interdepartmental or intersectoral approach** in terms of education." (MGR07)

- “We did health promotion more. We launched door to door campaigns, radio talks so we can spread the information as much as we can. We used **collaborative efforts** more as well, so we worked with the Community leaders, the counsellors and NGO’s.” (EHP26)
- “EH **cannot work in isolation** because we were collaborating.” (EHP39)
- “We were **engaged with multiple stakeholders**.” (MGR07)
- “We did eventually then **partner with disaster risk management and Public Participation** to get those messages out to the Community.” (MGR05)
- “There was an outbreak response protocol and it immediately meant that everybody knew what there was to be done. **There wasn't pushing for position or anything like that**. Everybody knew this is your role and that's your role.” (MGR06)
- “We were sitting in the **provincial meetings**, City Health was represented there and then we had the **Director meetings**, which were twice a week, and then we had our own **Area meetings**. So that level of information going up and down the system, so that we all knew all the time what was now being expected of us. It had also set us up to learn really quickly.” (MGR11)
- “I had a Head at that point, which was very contactable, so I could reach out to him quite easily for **consultation on things**.” (MGR13)
- “What we did from a management health team to the Area management health team. We **worked very closely with primary healthcare** and both with **environmental health** on a daily basis.” (MGR12)
- “Fortunately, we were **working together with an NGO called MSF, which is doctors Without Borders**, they provided trainings and we received a lot of information with regards to COVID-19 and everything surrounding it.” (EHP36)
- “We've had to **link a lot with communities, community leaders** and I'm looking at specifically in Area X, where I was part of the COVID command Council, in terms of getting information out.” (MGR14)

Quotations above show that Environmental Health officials overcame challenges through, inter alia, strong reciprocity and collaboration. They engaged in extensive consultation with health and safety departments on various relevant spheres of government and adopted an intersectional approach involving multiple stakeholders. Through partnerships with NGOs, community leaders and disaster management teams they strengthened outreach via multiple avenues. Although many internal departments were unavailable. Regular meetings across various spheres ensured clarity of roles, rapid learning and unified action toward protecting public health.

6.5.5 Overcoming challenges through revitalising

The capability of revitalising refers to addressing situations such as stagnations, power struggles or process deadlocks that can impede task performance (Termeer et al., 2015: 686; Termeer et al., 2016: 15; Wessels, 2024: 21). Where stagnation was encountered, procurement processes for example were adapted to ensure enhanced operations and staff safety. The division of work and working hours such as working remotely versus in the office which offered several benefits, among which are flexible channels of communication while keeping staff safe. This includes the sharing of resources such as masks and sanitisers between offices, this was a simple, yet effective way that assisted with keeping the staff protected.

The following quotes indicate instances where environmental health officials showcased the capability of revitalising:

- “We had to between ourselves and the clinics and other EH offices **help each other when we're running out of something**.” (MGR04)
- “In the early days of the pandemic, there was a shortage of PPE worldwide and the **procurement was a challenge**. However, together with our Supply Chain Management colleagues, we worked tightly to **ensure that staff were provided with the correct PPE**.” (MGR07)
- “We made sure all the **offices where people were, are separated** and far enough from one another.” (MGR13)

- “Back then we all had PC’s, not laptops yet, and we got cameras in and put that on the PC’s and we **started having Skype meetings** and trial and error with quite a lot of drama in the beginning. But that started working well and that was our **transition into this digital age**.” (MGR13)
- “Introduction of **virtual meetings**.” (NS - A - EHP)

The quotations above reveal that during the pandemic, environmental health officers revitalised their operations by fostering teamwork and innovation. They supported one another and collaborated with clinics to overcome shortages and worked closely with supply chain management officials to secure proper PPE. Officials were organised to ensure safe distancing, while digital communication was embraced using PC’s, cameras and Skype meetings, marking a successful transition into a more connected digital environment.

6.5.6 Overcoming challenges through rescaling

The capability ‘rescaling’ refers to the ability to align problem and governance scales (Termeer et al., 2016: 16). This capability is especially important for addressing complex problems involving multiple perspectives and jurisdictions (Wessels, 2020: 161). Within the context of the City of Cape Town, the constant defining and redefining of problems was an iterative cycle and proved to be an area where constant change management was required.

The primary focus was ensuring staff safety. Challenges stemming from these complex problems were addressed through a risk-based management approach. Protocols and guiding documents were essential, providing direction when difficult decisions were necessary. Furthermore, one office dedicated considerable time to reviewing and evaluating which operational methods were effective and which were not.

This capability was predominantly discovered with participants on the management level. The following quotes portrays this:

- “We had to **look at comorbidities** and all that kind of stuff.” (MGR13)

- “**New information** as it came out, we had to obviously apply our minds in terms of **mitigation and risks**.” (MGR14)
- “Most of the time we **figured things out** on our own and apply that within the regulations.” (EHP15)
- “Decisions were made based on legislation, new information and communication. The channels of communication were open upwards and downwards.” (NS - C - MGR)
- “There it was needing to actually **develop very strong distribution** of PPE and stock monitoring so that we always knew how much we had.” (MGR11)
- “Those advisories and directives and guidelines were coming on a daily basis. So, you had to make the time and effort to go through that, **make sure you understand** on your part and then ensure that your staff who are servicing areas also then **understand what the expectation** is.” (MGR05)
- “You **follow the protocols as far as possible**.” (MGR13)
- “What was really helpful as compared to overseas was that **we had a very strong national response** in the sense of the instructions that came from National government with regards to lockdowns.” (MGR01)
- “It was our strategies then make sure we did **have the most up to date information**.” (MGR11)
- “The golden rule was always **staff safety comes first** and rather er on the safe side than taking a risk.” (MGR13)
- “It wasn’t an easy task, when you manage staff, **you take responsibly** for them.” (MGR08)
- “I was part of specifically weekly meetings. I think it was a COVID-19 meeting that was it was instituted where we sat and we **deliberated and looked at what worked and what didn't**.” (MGR14)
- “There was a lot of **meetings** set up for us to be able **to share information**.” (MGR11)

- "We had to **decongest the facilities**. Staff started to **change their way of working**, working from home, straight from home instead of coming to the office, they go straight to the field." (MRG10)
- "I think that if you we **have to be very practical** in the application of what it is that we are saying. Is it doable? Is it practical? Is it rational?" (EHP02)

Quotations above illustrate that environmental health officials overcame challenges by constantly adapting to new information and practical realities. They applied evolving guidelines, assessed comorbidities and developed strong PPE distribution and stock monitoring systems. Regular meetings and advisories helped refine strategies, ensuring staff safety and compliance with national lockdown directives. By working remotely, applying independent judgement within regulations and prioritising risk mitigation, officials rescaled their operations effectively to protect both workers and communities during the pandemic.

6.6 Lessons learned by environmental health officials from responding to the COVID-19 challenges

According to Holzer and Newbold (2021: 453), public health professionals are committed to understanding and applying lessons learnt from pandemics and other health hazards. This section reports on responses by participants to the final interview question "Can you tell me what lessons were learned from the COVID-19 experience by you and/or the Environmental Health Office?" Key lessons learnt were established though interviews with participants (EHP's and Managers), they are discussed in the following sections supported by quotes from participants.

6.6.1 The need for debriefing

The COVID-19 pandemic provided many valuable lessons for the Environmental Health Department. However, it was clear that the maximum benefit from key learnings was not formally documented or utilised. Recognising staff's exceptional efforts and conducting formal debriefings are crucial elements that were overlooked. (EHP12) states, "I don't think that there was like a proper debriefing for EHP's or City Health or the City. So, any similar type of type of disease is going to

create the same type of panic and running around because we've never really had that proper debriefing" similarly, (EHP16) personally felt that "our department has failed us in supporting us as the staff, we never got the recognition, we never got the debriefing." Debriefing practices serves as a means to boost staff's morale, reduce stress, fosters a culture of improvement and enhances service delivery (Stafford, et al., 2021: 5). Evans, et al. (2023: 2) further states that "in healthcare, debriefings can give employees voice through discussion of unanticipated or difficult events."

6.6.2 Environmental Health Service recognition

The Environmental Health is historically undervalued as a service. The pandemic served as a form of indirect marketing, which greatly enhanced the recognition and standing of the Environmental Health service and profession.

Highlighting the important role environmental health plays within the public health ecosystem on a global scale. Simply put, "rediscovered the importance of our profession" (Day, 2021: 72) and "Back then our department **was less known than it is today**. Today most people know what environmental practitioners do, back then, not so much." (MGR13) and "We were very critical in this outbreak in terms of responses, yet what is sad is that at times we find that our **profession is under recognised**." (EHP09)

6.6.3 Need to be "flexible" to adapt

It is evident that challenges cannot be adequately addressed by rigid approaches. Being adaptable and flexible is one of the critical skills that were highlighted by participants, "What I learned was the **importance of being agile**. To be flexible and not to work in fixed ways." (EHP16) and further, "We learnt the **importance of flexibility**. It made it clear that fixed ways of working can hold us back." (NS - F - EHP), "**Flexibility** in roles and responsibilities." (NS - G - EHP) and "EHP's are **resilient** and we go above and beyond what is expected of us when faced with **challenging situations**." (NS - H - EHP)

Furthermore, adaptability is a result of being flexible to navigate through challenges. Being adaptable was an imperative when dealing with COVID-19 (Afrin, Chowdhury & Rahman 2021: 2). A key lesson learned was the importance of being able to adapt quickly under pressure. It was widely noted that circumstances could change instantaneously. "**Adapting** to new situations and being resilient." (NS - C - MGR) and 'the pandemic also revealed **how quickly circumstances can change**." (EHP16)

6.6.4 Importance of risk-based approaches

Risk-based approaches were highlighted as a reliable strategy in pandemic management, a case in point in was when EHP's focused on vulnerable groups "The epidemic clearly emphasised the linkages between social vulnerabilities and health. Areas which were worst affected **correlated with the most socially vulnerable**. This resulted in the **vulnerability-based strategy of interventions**" (NS - A - MGR).

Furthermore, "**Preventative measures** that is key to mitigate disease spread, and I think we underestimate ourselves in terms of what we contribute as EH. Prevention is better than cure. I think without the environmental component as a preventative structure or preventative measure, our clinics will be overloaded with clients." (MGR07)

6.6.5 Teamwork and collaboration

Working as a team strengthened environmental health official's ability to overcome challenges and cope with the stress of managing the crisis. EHP's supported each other and the fact that they had a unified approach made the situation lighter, this can be depicted from "We've realised that we are **stronger working in a team.**" (NS - B - EHP) and "I learned that **working as a team, any challenge can be faced**. It also taught me that we can be **resilient.**" (NS - K - EHP)

Leveraging collaborations and partnerships was highlighted as a key factor in dealing with the crisis, especially when conducting health promotion interventions.

Health promotion saves lives, **proactive health education helped change behaviour** and reduced stigma associated with the disease as well as transmission (NS - C - EHP), Very importantly, **building on partnerships, new and existing** was a key learning and success for this space." (MGR07) and "**Engaging communities through local leaders** and tailored messages builds trust and cooperation." (NS - C - EHP)

6.6.6 Communication

Having clear and effective communication on all levels is viewed as important in public health emergencies based on the following responses, "Need for **effective communication**." (NS - G- EHP), open **channels of communication**." (NS - C - MGR) and "The approach of **transparent communication** and engaging with general public assisted." (NS - E - EHP)

6.6.7 Training

There was appetite for training in dealing with health emergency situations to be better prepared for future outbreaks, the following quote alludes to this, "Preparedness for epidemics should be **part of training programmes**." (NS - L - EHP) and "The **lessons were important** as they help in preparing us for future health emergencies." (NS - E - EHP), "**sharing of information.**" NS - G - EHP and "Knowledge is power. **Education** of staff is key." (NS - B - MGR)

6.6.8 Change in way of work

Working from home or the hybrid model that was adopted has potential to add value to future working arrangements for Environmental Health. In addition, working from home decreases the exposure to COVID-19. (MGR07) expresses that a hybrid working model would be desired for the future. "A combination of **work from home and in office attendance (hybrid)** would be a preferred way forward" and according to (NS - A - EHP), "EHP's do not have to be **office bound**."

6.6.9 Brief summary

The discussion above shows that environmental officials learned valuable lessons from their response to the COVID-19 pandemic. These lessons include among others, the importance of agility, flexibility and building strong partnerships. They recognised the critical role of prevention in reducing disease spread, and the growing awareness of their profession's value. However, lack of debriefing and recognition highlighted the need for better staff support. Officials also identified hybrid work models as an effective way forward, emphasising adaptability in future public health emergencies.

6.7 Conclusion

This chapter reported on lived experiences of environmental the health officials in relation to challenges brought about by COVID-19 regulations and guidelines, the capabilities they used to overcome these challenges, and the lessons they learned from their response to these challenges. Data from interviews shows that officials were suddenly placed in unexpected circumstances and had to quickly devise the most suitable methods for responding to the pandemic.

Themes emerging from the data were developed after analysing participant' responses to research questions. No less than nine challenges were identified through the analysis of interview transcriptions, namely; staff safety and adherence to COVID-19 protocols, workplace changes and work from home model, operational challenges and adjustment of service rendering, contact tracing, novelty, fear and impact on mental health, policy, impact of vaccinations, training and capacitation as well as resource constraints.

Using the theoretical lens of the capability approach as discussed in Chapter 2, interview transcriptions were analysed to identify how six capabilities (reflexivity, resilience, responsiveness, reciprocity, revitalising and rescaling) enabled environmental health officials to overcome COVID-19 related challenges. It is worth noting that capabilities were mechanisms utilised to overcome these challenges. Finally, this chapter provided lessons learned from the pandemic to inform

responses to future public health emergencies relating to inter alia, notifiable medical conditions that has similar in characteristics.

CHAPTER 7: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

Like many cities globally, the City of Cape Town faced many challenges stemming from the COVID-19 pandemic. The Environmental Health Department was particularly challenged: it had to maintain its Constitutional mandate for quality service delivery while also functioning on the frontlines of the pandemic response with limited resources. Operating strictly under traditional policies was particularly difficult, revealing both vulnerabilities and opportunities for improvement within the existing service delivery framework.

Reflecting on this period raises a critical question: How did the Environmental Health Department of the City of Cape Town meet the challenges posed by the Covid-19 pandemic? This pre-scientific question informed the following research question for this study: What public administration capabilities were required from Environmental Health Department of the City of Cape Town to effectively respond to the unique challenges presented by the Covid-19 pandemic? The purpose of this study was to identify the lessons learnt and the capabilities required by the Environmental Health Department of the City of Cape Town to respond to challenges presented by the Covid-19 pandemic.

This chapter provides an overview of the study as reported in the previous chapters of this dissertation, a summary of the key findings to formulate final conclusions, a reflection on limitations of the study and recommendations for further research and practice.

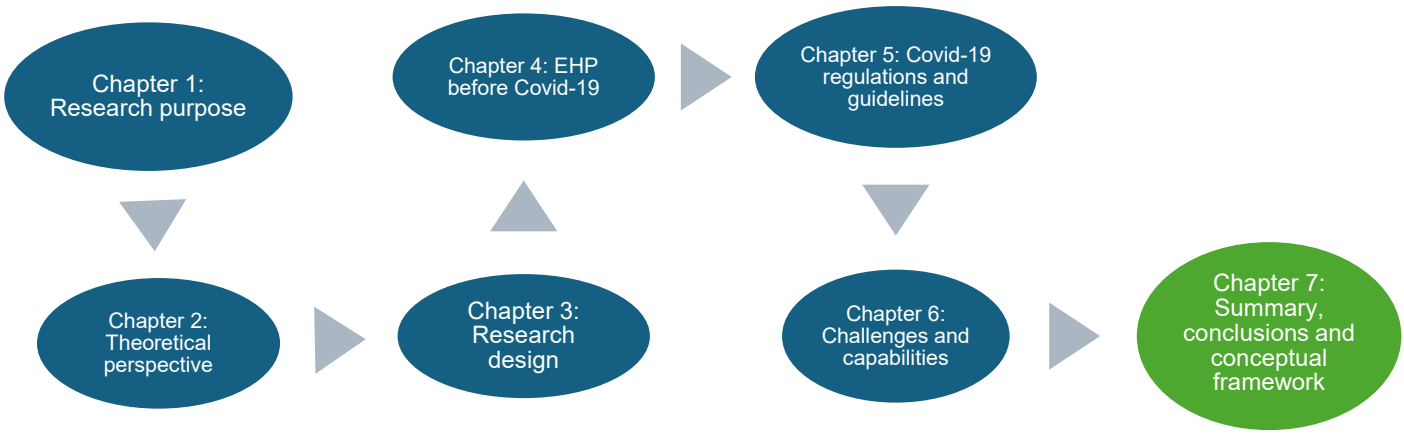


FIGURE 7.1: CHAPTER MAPPING

(Chapter titles in abbreviated form)

7.2 Overview of the study

As indicated in the introduction to this dissertation (Chapter 1), the purpose of this study is to identify and understand capabilities required by environmental health officials to deal with challenges posed by the Covid-19 pandemic. To achieve this aim, a case study research design was chosen using the Environmental Health Department of the City of Cape Town as case study (see chapter 3). This design is deemed appropriate to get an in-depth understanding of a phenomena such as the behaviour of people under specific conditions.

While the unit of analysis for this study was environmental health officials of the City of Cape Town, the study specifically focused on their lived experiences of their functions, challenges posed by the Covid-19 pandemic, and their response to those challenges. The purpose of this study was to identify capabilities demonstrated by the Environmental Health Department of the City of Cape Town while responding to challenges presented by the Covid-19 pandemic.

This was done by applying the theoretical lens of public administration capabilities (Chapter 2) to the lived experiences of participants at the time before the outbreak of the pandemic (Chapter 4), the nature and scope of the Covid-19 related regulations and guidelines (Chapter 5), the nature of challenges posed by these regulations on their ability to perform their functions (Chapter 6) and capabilities enabling them to deal with those challenges (Chapter 6).

7.3 Summary of key findings

To achieve the research purpose as formulated in the previous section, five research objectives were formulated (Chapter 1) and are used to summarise key findings from this study.

While the concept ‘public administration capabilities’ is key to the research, the first objective of this study was to obtain a theoretical perspective on this concept (Chapter 2). This perspective seeks to understand this concept in order to apply the theoretical lens to analyse data. Following a review of the relevant literature, six public administration capabilities were identified, namely reflexivity, resilience, responsiveness, reciprocity, revitalising and rescaling (see figure 6.1). These six capabilities were used to analyse environmental health officials lived experiences in performing their functions during the Covid-19 pandemic.

The second objective of this study was to describe characteristics of environmental health functions performed by officials in the City of Cape Town during the pandemic (Chapter 4). A constitutional and statutory basis of environmental health functions was outlined, further delving deeper into the nine environmental health mandated functions as per the 'Scope of practice regulation’ of 2009 (see section 4.3.3 in chapter 4). These experiences were discussed resulting in key themes emerging such as, working in institutional silos, where it was found that Environmental Health and Primary Healthcare sections were working in insolation to each other to a large degree.

Participants also highlighted the experience of being in control of their work before Covid-19, with the phrase, ‘business as usual’ and ‘normal’ being widely used.

Indicating that routine work was conducted within the standard norms officials were accustomed to.

Furthermore, participants indicated that their functions are well understood, a theme that was common to many who participated, they also indicated that their mandated functions were understood and that the work was done in accordance with the set PDR service delivery targets (“Work was done as per expectations within Norms and Standards for Environmental Health” we had the PDR, and we did everything according to the PDR.” (MGR06))

The third objective was to describe the nature and scope of the Covid-19 regulations and guidelines applicable to the environmental health department and its officials (Chapter 5). This was necessary as it was assumed that these regulations and guidelines, together with the impact of the pandemic itself, not only changed the work environment and its officials but increased the difficultly or complexity of their work.

This was done through a content analysis of the relevant documents as published in the Government Gazette during this period. A total of 338 documents related to the management of COVID-19 were published, 138 of these had a direct impact on the Environmental Health service. This accounted for 41% of all documents published at the time, underscoring the important role the Environmental Health Service played in managing the Covid-19 pandemic in South Africa. There was a clear connection between official documents and certain environmental health functions such as health surveillance of premises, prevention of communicable diseases and disposal of the dead. A major focus during the pandemic was health promotion activities in communities, which was led by environmental health officials. This constituted as one of their primary functions at the time.

The fourth objective of the study was to identify challenges posed by Covid-19 regulations to the ability of environmental health officials in the City of Cape Town to perform their functions (Chapter 6). This was accomplished through the use of focus groups and individual interviews, as well as naïve sketches to explore the lived experiences of officials.

Several challenges emerged as themes namely, staff safety and adherence to the Covid-19 protocols, workplace changes and work from home model, operational challenges and adjustment of service rendering, contact tracing, impact on mental health, policy, impact of vaccinations, training and capacitation and resource constraints.

The results indicate that there were many challenges encountered by environmental health officials during the Covid-19 pandemic. It was observed through the data that staff safety was one of the first challenges that were highlighted during interviews. Managers voiced concerns regarding their staff's well-being, driven by the risk of community transmission and the virus's unpredictable nature. However, despite the managerial concern, EHP's felt their safety needs were not adequately met. This was particularly true in the early stages of the response when they were required to perform their duties despite the lack of personal protective equipment (PPE) (see 6.4.9). Workplace changes and relocation was unsettling for certain EHP's. There was inconsistent implementation of the work-from-home model leading to EHP's feeling aspects of mistrust from managers, not being considered and that they were put at unnecessary risk of exposure. However, EHP's in certain offices were granted permission to work from home due to comorbidities. Covid-19 was regarded as a priority, leading to some routine functions being neglected. Furthermore, gaining entry into premises and collaborating with other departments on an operational level was challenging. The amount of work increased substantially ("Health promotion was intensified." (MGR10)). Contact tracing was not a new task for EHP's however, due to the physical nature of this task, easy transmission of the virus and scale of the pandemic, contact tracing activities presented as a challenge.

The Impact on mental health was significant at the time, with environmental health officials having to contend with a central stressor, which was fear of the unknown. Consequently, this stressor evoked feelings of anxiety, confusion, being undervalued, depression and nervousness (see 6.4.5).

The belief that they must serve, even to their own detriment, was palpable. Concurrently, compassionate leadership was notably absent in certain offices ("Your mental health was also affected and I don't think management even considered or took that into consideration." (EHP01)). Conversely, there was management support offered to EHP's in certain offices. Many policies were developed during this time, which is extraordinary, in fact, no less than 138 official documents relating to environmental health services (see table 5.1).

Often these policies were vaguely written, leaving environmental health officials with the responsibility to interpret and align them with specific objectives in order to operationalise them. The challenge with was difficult to manage given the controversy associated with vaccinations at the time. EHP's were tasked with the responsibility to promote the vaccinations in the community, which was challenging. Training and capacitation efforts were a made compulsory to ensure that staff was comfortable with the new regulations, directives and guidelines, ("EHP's had to rapidly assimilate many directives, circulars and scopes in their routine functioning. Often, directives from national were not clear and considerable." (MGR07)). This influenced standardisation in enforcement of the legislation across the City of Cape Town. Resource constraints brought about challenges on two fronts, one being staffing numbers to operate effectively. In some offices, many staff members fell ill simultaneously, forcing those remaining on-duty to absorb the resulting workload. Additionally, the scarcity of PPE significantly increased the EHP's risk of contracting COVID-19.

The fifth objective entails a deepened understanding of capabilities which enabled environmental health officials to overcome challenges experienced. This was done by analysing interview transcripts and naïve sketches through the capability lens as discussed in chapter 2. The results of this analysis are discussed in section 6.5 of chapter 6. Results indicate that there is a relationship between six public administration capabilities (6 R's), for example where staff showed resilience and responsiveness.

Of the six public administration capabilities, most linkages could be found in revitalising, resilience and responsiveness based on participants responses. This will be further discussed in the following section. While revitalising was displayed when staff was forced to understand the nature of problem at hand by means of discussions (for example “Sitting on the round table with everybody and deliberating or discussing, you know what it is and what the concerns were. Then looking at what mechanisms was put in place from a national, provincial and local government in terms of staff safety.” (MGR02)) and had to look back at previous experiences to inform the decisions made during the pandemic (“We made decisions a lot as a team, so drawing on the wisdom of the team. We made decisions drawing a lot on our previous experience.” (MGR11). Environmental health officials portrayed revitalising through frequent deliberations on the legislation at play and how previous experiences could assist with the response to Covid-19.

The data revealed that most participants found a significant correlation between their response to the pandemic and resilience. The capability of resilience was displayed throughout various stages of the pandemic. Managers were impressed by the resilience displayed by EHP’s at the time (“Our staff all got infected at that point. Staff were quite resilient and I take my hat off to them for how they worked” (MGR13)). EHP’s felt like they responded in a flexible, creative, positive and adaptive manner to challenges posed by the pandemic (“This just showed us again that EHP’s are very, very resilient and very flexible no matter what situation we get thrown into. We always we rise to the challenge and we end up making a success of it.” (EHP19)). With the adaptive ability being a core characteristic of resilience.

This was done amidst the constant fear that lived inside most of the staff. The environmental health service was classified as an essential service (see 6.5.3), which meant responding to the pandemic from a mandated and public health perspective. Responsiveness was displayed in the environmental health officials’ risk-based and structured approach to nuances presented by the pandemic. Various environmental heath functions (see 4.3.3) were put on hold and the focus was placed on the response to Covid-19. (“We relaxed on those nine functions and

focused more on the Covid-19 function." (MGR08)). Lessons learnt by environmental health officials allowed participants to reflect on their individual experiences during the pandemic. This provided invaluable insights that could inform approaches to managing future public health crises situations. The need for debriefing post public health outbreaks, recognition of the environmental health service, teamwork and collaboration, training and change in the way of work were among the most lessons raised.

7.4 Conclusions

This study started with a research question "What public administration capabilities were demonstrated by public officials during the Covid-19 pandemic to perform the Environmental Health functions of the City of Cape Town?" At the centre of this inquiry were public officials tasked with overseeing environmental health operations in the City of Cape Town: the environmental health officials (refer to Figure 7.2).

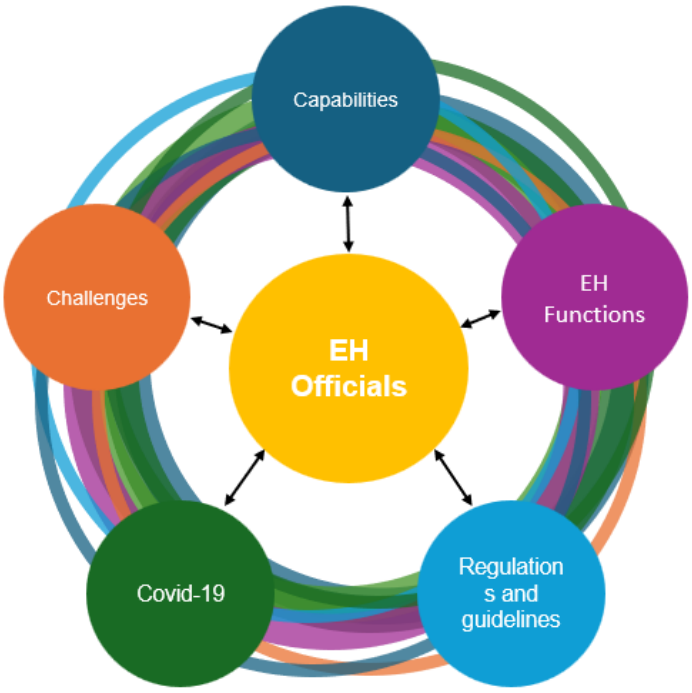


FIGURE 7 2: EH OFFICIALS, THEIR FUNCTIONS, COVID-19 PANDEMIC, EMERGENCY REGULATIONS AND GUIDELINES, EXPERIENCED CHALLENGES AND CAPABILITIES

SOURCE: RESEARCHER'S OWN COMPILATION

These professionals were not only expected to fulfil their routine operational duties, but also unexpected responsibilities related to the management of the Covid-19 pandemic, including a multitude of new regulations and guidelines necessitating adjustments in how their responsibilities were carried out. This study interacted with environmental health officials to explore how they confronted these challenges and what their experiences were of the capabilities necessary for overcoming such obstacles.

The lived experiences of the environmental health officials demonstrated their ability to apply the following capabilities to overcome the Covid-19 related challenges while performing their functions:

Reflexivity (see 6.5.1) was demonstrated when environmental health officials had to navigate a difficult space by ensuring their functions are executed while keeping staff safe and ensuring adherence to the Covid-19 protocols.

This was done by looking back on previous experiences, learning and embracing the diverse views. Establishing open lines of communication within City Health and with various spheres of government. The mechanism to do so was adapting to virtual platforms (such as Skype and Zoom) for meetings and training sessions.

Having the ability to adapt was core to the Covid-19 response. **Resilience** (see 6.5.2) was undoubtedly the most prominent capability exhibited by EHP's during the Covid-19 pandemic. EHP's took on additional tasks such as contact tracing, additional administrative duties, increased frequency of inspections at certain sites and intensive advocation of the Covid-19 safety protocols. At the same time placing less emphasis on certain functions, to keep safe and more importantly divert efforts and resources on the Covid-19 mitigation strategies. Amidist the chaos environmental health officials contended with uncertainties from the pandemic and maintained their identify. This was illustrated by the support team members gave each other, thus decreasing the mental health strain, maintaining cohesiveness and ensuring that the service is offered despite the challenges faced.

Responsiveness (see 6.5.3) was demonstrated by the way environmental health officials responded to challenges posed by the Covid-19. In many instances they

showcased innovative, attentive and prompt responses, examples are, adjusting to not being able to fulfil all duties which falls in the environmental health functions, conducting contact tracing telephonically, securing of face masks for staff, loud hailing messages in the community, sharing of information with clients in order to gain cooperation when clients declined entry into premises, encouraging colleagues to take the vaccine and managing the increase in enforcement activities and its complexity. All of this conducted within a risk-based framework.

As per the ancient proverb, ‘with unity comes strength’, environmental health officials collaborated with key internal and external stakeholders to strengthen their ability to execute their mandate during this period. The disjuncture between Primary Healthcare and Environmental Health was improved by the frequency of meetings held the between the two sections in certain Areas. Health promotion was one of the key activities utilised to educate the community by conveying safety messages relating to Covid-19.

EHP’s joined forces with Disaster Risk Management Department, the Public Participation Unit and the Community based Covid Command Council in certain Areas to accomplish this. The training gap was closed by working with the Occupational Health and Safety Department and Doctors Without Borders. This multi-avenue approach demonstrated the capability of **reciprocity** (see 6.5.4).

Environmental health officials overcame challenges that negatively affected operations through **Revitalising** (see 6.5.5)**.** There was a huge shortage of PPE (particularly face masks) during the onset of the pandemic. This was addressed by management working closely with the Supply Chain Management Department. Offices and clinics also worked together and shared resources. Not being able to meet physically was addressed by migrating to online platforms. In a certain office a manger secured cameras for staff members computers in their private capacity, which enabled video capability during online meetings.

Rescaling (see 6.5.6) was a constant capability displayed throughout the pandemic with environmental health officials forced to implement legislation in a fast-paced setting with inherent uncertainties. Legislation and new information was core to

decisions made. Having the most current information was crucial while discussing operational plans within teams. Risk-based and reasonably practicable approaches were adopted to keep staff safe. The risk of contracting Covid-19 due to community or office exposure was addressed by decongesting facilities and adjusting the way of work in certain instances.

7.5 Reflection on the limitations and future research

This section reflects on limitations of the study and makes recommendations for future research, which are outlined below:

- The public administration capability framework is not integrated into the recruitment and selection process and training program. Further research on this could assist in selecting candidates with a closer fit and create awareness of the capabilities, example at induction and orientation training sessions.
- Research outcomes may not include all capabilities demonstrated by environmental health officials. Further research in what capabilities resonate most with these officials could add value.
- EHA's working within the various operational Areas and EHP's working within the City Health: Specialised Health unit were not included in this study. Further research on what capabilities were demonstrated by these groups can be undertaken.
- EHP's perception of policy was not assessed. Further research into this could inform policy implementation plans and change management approaches within the environmental health fraternity.

7.6 Recommendations for practice

Based on the conclusions made in this research the researcher aims to make recommendations that extends beyond future studies and includes contributions for practical application. This section aims to provide elements that can be explored or

integrated into existing practice to strengthen the ability of Environmental Health Departments to deal with wicked problems.

7.6.1 Streamlining processes for obtaining resources

It was discovered that securing resources such as personal protect equipment for staff members during the crisis was a challenge. Streamlining procurement processed to cater for emergency situations could assist in overcoming this challenge.

7.6.2 Strengthening policy interpretation mechanisms

EH officials grappled with policy interpretation and its application within the local context during Covid-19. This could be addressed by formalising policy capacitation at national, provincial and local levels with the inclusion of a monitoring and evaluation mechanism.

7.6.3 Building leadership flexibility and trust

The research illustrates that flexibility in leadership is of utmost importance when dealing with unknown Public Health challenges. Furthermore, trust between mangers and staff impacts the efficiency and quality of work. Compassionate leadership training and team enhancement sessions could add value in this area.

7.6.4 Importance of debriefing after major events

Debriefing was one of the critical aspects that were not considered as expressed by EH officials. A proactive approach to debriefing can be adopted by establishing a multidisciplinary debriefing team supplemented by being intentional with seeking opportunities for collaboration.

7.6.5 Consideration of hybrid working models

Certain teams evidently performed well while working within a hybrid working model. Data driven approaches can be used as a lever to elevate an explore the

benefits (for example efficiency gains and safety improvements) of hybrid models and working from home. An in-depth analysis could ultimately inform the feasibility of this model.

LIST OF SOURCES

Abdulla, W. & Kim, S. 2020. Singapore's response to the COVID-19 outbreak: a critical assessment. *American Review of Public Administration,* 50: (6-7): 770–773.

Afrin, S., Chowdhury, F. & Rahman, M. 2021. COVID-19 Pandemic: Rethinking Strategies for Resilient Urban Design, Perceptions, and Planning. *Front. Sustain. Cities* 3:668263.

Agenbag, M. & Balfour-Kaipa, T. 2008. Developments in Environmental Health. *South African Health Review*, 2008(1): 149–160. Available at: https://www.hst.org.za/publications/South%20African%20Health%20Reviews/10%20Developments%20in%20Environmental%20Health%20SAHR%202008.pdf. [Accessed: 27 September 2025].

Ashwell, A., Jacobs, R., Docrat, S & Schneider, M. 2020. The impact of Long-term Care facilities in South Africa with a specific focus on Dementia Care. *International Long term care policy network*. CPEC-LSE. 3–4.

Aslam, H. & Akram, S. 2020. *COVID -19 Pandemic: Challenges to health care system of Pakistan: Policy Review*. Islamabad: Sustainable Development Policy Institute*. Available at: https://sdpi.org/assets/lib/uploads/uploads/2020/05/Challenges-to-health-edited-hina-clean-version-final.pdf*. [Accessed: 9 July 2023]

Babbie, E & Mouton, J. 2001. *The practice of social research*. Cape Town: Oxford University Press.

Balfour-Kaipa, T. 2006. *Municipal Health Services in South Africa Opportunities and Challenges*. 1 – 12. DBSA. Available at: https://www.dbsa.org/sites/default/files/media/documents/2021-03/Municipal%20health%20services%20in%20South%20Africa%20Opportunities%20and%20challenges.pdf. [Accessed: 08 August 2025].

Battersby, S. 2022. Environmental health practitioners and the COVID-19 pandemic. *Perspectives in Public Health*, 142(5): 253-254.

Berbés-Blázquez, M., M. Schoon, K. Benessaiah, E. M. Bennett, G. D. Peterson, & R. Ghimire. 2022. Resilience in the times of COVID: what the response to the COVID pandemic teaches us about resilience principles. *Ecology and Society,* 27(2): 16.

Bhoola, S. 2022. The Impact of COVID-19 Pandemic Lockdown Measures on Restaurants in Durban. South Africa. *African Journal of Hospitality, Tourism and Leisure,* 11(4): 1410.

Bourgon, J. 2010. The history and future of nation-building? Building capacity for public results. *International Review of Administrative Sciences*, 76(2): 197–218.

Chakraborty, P., Kumar, R., Karn, S., Srivastava, A.K & Mondal, P. 2023. The long-term impact of coronavirus disease 2019 on environmental health: a review study of the bi-directional effect. *Bulletin of the National Research Centre,* 47(1): 33.

Co-operative Governance and Traditional Affairs, Department. 2020. R480. Disaster Management Act (57/2002). 16(2)(b). Table 1, Part O.

Collins 2025. Challenge. Available at: https://www.collinsdictionary.com/dictionary/english/challenge. [Accessed: 07 October 2025].

Cucinotta, D. & Vanelli, M. 2020. 'WHO declares COVID-19 a pandemic', *Acta Bio Medica: Atenei Parmensis*, 91(1): 157–160.

Day, C. 2021. *COVID-19: The Global Environmental Health Experience*. London: Routledge.

Department of Health. 2013. National norms and standards relating to environmental health in terms of National Health Act, 2003 (Act No 61 of 2003). *Government Gazette* 36849 of 20 September 2013, Notice 943 of 2013. Pretoria: Government Printer.

Department of Health. 2020. Disaster Management, No. 457, Section 7, 08 April 2000).

Doraiswamy, S., Mamtani R & Cheema, S. 2021. An in-depth analysis of 10 epidemiological terminologies used in the context of COVID-19. *Scandinavian Journal of Public Health.* Institute for population health. Weill Cornell Medicine. Qatar, 2.

Dhesi, S. 2013. Reflexivity – researching practice from within*. Journal of Environmental Health Research,* 13(1): 83–87.

Dunlop, C., Ongaro, E & Baker, K. 2020. Researching COVID-19: A research agenda for public policy and administration scholars. *Public Policy and Administration,* 35(4): 366.

Eppel & Rhodes, 2018. Complexity theory and public management: a 'becoming' field. *Public management review*, 20(7): 949–959.

Evans, M. 2022. Basic Concepts in Public Health. In: M.T. Haneline & W.C. Meeker (Eds.) *Introduction to Public Health for Chiropractors* (pp. 35–47). Boston: Jones and Barlett Publishers.

Evans, T., Burns C., Essex, R., Finnerty, G., Hatton, E., Clements, A.J., Breau, G., Quinn, F., Elliott, H., Smith, L.D., Matthews, B., Jennings, K., Crossman, J., Williams, G., Miller, D., Harold, B., Gurnett, P., Jagodzinski, L., Smith, J., Milligan, W., Markowski, M., Collins, P., Yoshimatsu, Y, Margalef, T.J, Colpus, M., Dayson, M.L. & Weldon S. 2023. A systematic scoping review on the evidence behind debriefing practices for the wellbeing/emotional outcomes of healthcare workers. *Front. Psychiatry* 14:1078797.

Frazer, K., Mitchell, L., Stokes, D., Lacey, E., Crowley, E. & Kelleher, C.C. 2021. A rapid systematic review of measures to protect older people in long-term care facilities from COVID-19, *BMJ Open,* 2021(11): e047012.

Goh, S., & Soon, C. 2019. Governing the Information Ecosystem: Southeast Asia's Fight Against Political Deceit. Public Integrity, 21(5): 523–536.

Head, B. W. 2022. *Wicked problems in public policy: Understanding and responding to complex challenges*. Palgrave Macmillan.

Head, B. & Alford, J. 2015. Wicked Problems: Implications for Public Policy and Management. *Administration & Society*, 47(6): 711–739.

Hennink, M. & Kaiser, B. 2022. Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine*, 292(114523): 2.

Herrington, T. & Herrington, J. 2005. *Authentic learning environments in higher education*. Hershey: Information Science Publishing.

Holzer, M. & Newbold, S. 2021. A call for action: Public administration, public policy and public health responses to the COVID-19 pandemic. *American Review of Public Administration,* 50(6-7): 450–454

Hulme, D & Horner, R. 2020. After the Immediate Coronavirus Crisis: Three Scenarios for Global Development. *COVID-19 in the Global South: Impacts and Responses*, 1–195. Bristol. Bristol University Press.

Jing. Y. 2021. Seeking opportunities from crises? China's governance responses to the COVID-19 pandemic. *International Review of Administrative Sciences*, 87(3): 631–650.

Kelley, T. & Covi, M. 2013. Environmental Health Hazardscapes. *Environmental Health Insights*, 7(68).

Klepac, B., Mowle, A., Riley, T., Craike, M. 2023. Introducing the RAPT: A tool for assessing and enhancing the quality of practical resources. Methods Snapshot. Pathways in Place: Co-Creating Community Capabilities. *Victoria University*, Victoria.

Knassmüller, M. & Meyer, R. E. 2013. What kind of reflection do we need in public management? *Teaching Public Administration,* 31(1): 81–95.

Lee, S., Yeo, J., & Na, C. 2020. Learning From the Past: Distributed Cognition and Crisis Management Capabilities for Tackling COVID-19. *American Review of Public Administration,* 50(6-7): 730–731.

Lewin, S. & Strauss, N. 1999. Planning urban environmental health systems: a case study of Cape Town, South Africa. *Environment and urbanisation*, 11(2): 256.

McDonald, B., Goodman., C & Hatch, M. 2020. Tensions in state-local intergovernmental response to emergencies: the case of COVID-19. *State and Local Government Review*, 53: 186–194.

McDougall, R., Gillam, L., Ko, D., Holmes, I. & Delany, C. 2021.Balancing health worker well-being and duty to care: an ethical approach to staff safety in COVID-19 and beyond. *Journal of Medical Ethics*, 47: 318–323.

Moonasar D., Pillay A., Leonard E., et al., 2021. COVID-19: lessons and experiences from South Africa's first surge. *BMJ Global Health*, 6:e00439.

Morse, T., Chidziwisano K., Musoke D., Beattie, T.K. & Mudaly, S. 2020. Environmental health practitioners: a key cadre in the control of COVID-19 in sub-Saharan Africa. *BMJ Global Health*, 5:e003314.

Mouton, J. (2022). *How to succeed in your Master's and Doctoral Studies, A South African Guide and Resource Book*. Cape Town: Van Schaik Publishers.

NDOH. 2025. Knowledge Hub - COVID-19 related guidelines. *KnowledgeHub*. Pretoria: National Department of Health. Available at: https://knowledgehub.health.gov.za/covidCOVID-19 [Accessed: 10 September 2025].

NDOH. 2020. NICD – Environmental Health Guidelines. Available at: https://www.nicd.ac.za/wp-content/uploads/2020/04/COVID-19-ENVIRONMENTAL-HEALTH-GUIDELINE-1-3.pdf [Accessed: 13 September 2025].

Notten T. 2016. Teaching, researching and innovation: an appetising programme. *Teaching Public Administration,* 34(1): 70–82.

Nussbaum M., 1999. Women and equality: the capabilities approach. *International Labour Review,* 138(3): 233.

O'Neill, M. R. & Glasson, S. 2019. Revitalising professional learning for experienced principals: Energy versus ennui. *Educational Management Administration & Leadership*, 47(6): 887-908.

Oosthuizen, J., Stoneham, M., Hannelly, T., Maseka, E., Dodds, G. & Andrich, V. 2022. Environmental Health Responses to COVID 19 in Western Australia: Lessons for the Future. *International Journal Environmental Research and Public Health*, 19(9393).

Oxford Dictionary of English. 2025. Oxford: *Oxford University Press*. Challenge. Available at: https://www.oed.com/dictionary/challenge_n?tab=meaning_and_use#9778024. [Accessed: 07 October 2025].

Peiris, M. and Poon, L. 2021. "Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) (*Coronaviridae*)." *Encyclopedia of Virology,* 184.

City of Cape Town. 2013. *Policy for sampling potable water in distribution system*, Policy number: EH 03/07 2013. City of Cape Town. City Health Internal Policy.

Raheim, M., Magnussen, L., Sekse, R., Lunde, S., Jacobsen, T. & Blystad, A. 2016. Researcher-researched relationship in qualitative research: Shifts in positions and researcher vulnerability. *International Journal of Qualitative Studies on Health and Well-being,* (11) 30996: 1–2.

Republic of South Africa (RSA). 2005. *Constitutional Laws Act 5 of 2005. Government Gazette No. 27722, 1.*

Republic of South Africa (RSA). 1974. *Health Professions Act 56 of 1974*, as amended. Pretoria: Government Printer.

Republic of South Africa (RSA). 1998. *Local Government: Municipal Structures Act 117 of 1998*, as amended. Pretoria: Government Printer.

Republic of South Africa (RSA). 2003. *National Health Act, Act* 61 of 2003, as amended. Pretoria: Government Printer.

Republic of South Africa (RSA). 2002. *Disaster Management Act 57 of 2002*. Pretoria: Government Printer.

Republic of South Africa (RSA). 2003. *National Health Act 61 of 2003*. Pretoria: Government Printer.

Republic of South Africa (RSA). 2000. *Disaster Management, Alert level 3, published on 28 May 2020. Pretoria: Government Printer.*

Republic of South Africa (RSA). 2021. *Disaster Management, Revised protocols on Contact Tracing, Quarantine and Isolation, published on 23 December 2021. Pretoria: Government Printer.*

Republic of South Arica (RSA). 2013. *National Environmental Health Policy 2013*. Pretoria. Government Printer.

Republic of South Africa (RSA). 2017. *Regulations relating to the surveillance and the control of notifiable medical conditions.*

Republic of South Africa (RSA). 2025a. Speeches: President Cyril Ramaphosa: Measures to Combat Coronavirus. Available at: https://www.gov.za/news/speeches/president-cyril-ramaphosa-measures-combat-coronavirus-covid-19-epidemic-15-mar-2020 [Accessed: 23 September 2025].

Republic of South Africa (RSA). 2025b. Regulations and Guidelines - Coronavirus CovidCOVID-19. Available at: https://www.gov.za/covidCOVID-19/resources/regulations-and-guidelines-coronavirus-covidCOVID-19. [Accessed: 24 August 2025].

Rodrigues, M., Silva, M.V., Errett, N.A., Davis, G., Lynch, Z., Dhesi, S., Hannelly, T., Mitchell, G., Dyjack, D. & Ross, K.E. 2021. How can Environmental Health Practitioners contribute to ensure population safety and health during the COVID-19 pandemic? *Safety Science*, 136(105136): 2–3.

Ryan, B., Swienton, R., Harris, C. & James, J. 2020. Environmental Health Workforce – Essential for Interdisciplinary Solutions to the COVID-19 Pandemic. *Disaster Medicine and Public Health Preparedness,* 15(2): e1-e3.

Sarvela, A., Läikkö-Roto, T., & Lundén, J. 2023. CovidCOVID-19 pandemic induced measures in food industry improves food safety as perceived by food business operators in Finland. *International Journal of Environmental Health Research*, 34(3): 1853.

Sen, A.K. 1994. Well-being, capability and public policy. *Giornale degli Economistie Annali di Economia, Nuova Serie*, 53(7/9): 339.

Sikorski, M. & Levine, M.M. 2020. Reviving the "Moore Swab": a Classic Environmental Surveillance Tool Involving Filtration of Flowing Surface Water and Sewage Water to Recover Typhoidal Salmonella Bacteria. *Applied and Environmental Microbiology*, 86(13): e00060-20.

Soujaa, I., Nukpezah, J & Benavides, A. 2021. Coordination effectiveness during public heath emergencies: An institutional collective action framework. *Administration and Society,* 53(7): 1018.

Stafford, J.L., Leon-Castelao, E., Klein Ikkink, A.J., Qvindesland, S.A., Garcia-Font, M., Szyld, D., Diaz-Navarro, C. 2021. Clinical debriefing during the COVID-19 pandemic: hurdles and opportunities for healthcare teams, *Advances in Simulation*, 6: 1-6.

Tang, J. 2021. The COVID-19 pandemic and the future of public health. *Cultures of Science,* 4(2): 99.

Termeer, C.J.A.M., Dewulf. A., Breeman. G. & Stiller, S.J. 2015. Governance Capabilities for Dealing Wisely with Wicked Problems. *Administration & Society*, 47(6):680–710.

Termeer, C.J.A.M., Dewulf, A., Karlsson-Vinkhuyzen, S.I., Vink, M. & van Vliet, M. 2016. Coping with the wicked problem of climate adaptation across scales: The Five R Governance Capabilities. *Landscape and Urban Planning*, 154:11–19.

Thani, X.C. 2018. *Methodological Preparedness of Doctoral Candidates in Public Administration: An Interpretive Phenomenological Approach*. Pretoria: University of South Africa.

Tulenko, K. & Vervoort, D. 2020. Cracks in the system: The effects of the Corona

virus pandemic on public health systems. *American Review of Public Administration,* 50(6–7): 464.

Visagie, R, Beyers, S, Wessels, J. S. 2019. Informed Consent in Africa – Integrating Individual and Collective Autonomy. In N. Nortjé, R. Visagie, & J. S. Wessels (Eds.), *Social Science Research Ethics in Africa*, pp. 165–178. Springer.

Wenene, M.T., Steen, T. & Rutgers, M.R. 2016. Civil servants' perspectives on the role of citizens in public service delivery in Uganda. *International Review of Administrative Sciences*, 82(1): 169-189.

Wessels, J.S. & Visagie, R. 2017. The eligibility of Public Administration research for ethics review: a case study of two international peer-reviewed journals. *International Review of Administrative Sciences*, 83(1_suppl): 156–176.

Wessels, J.S., & Visagie, R. 2019. Risk Assessment of Social Science Research in Africa. In N. Nortjé, R. Visagie, & J. S. Wessels (Eds.), *Social Science Research Ethics in Africa* (73–87). Springer.

Wessels, J.S. & Zongozzi, J.N. 2024. Case study research in public administration: analytical framework and systematic review. In P. Rule & V. M. John (Eds.), *Handbook of Case Study Research in the Social Sciences* (272–301). Edgar Elgar.

Wessels, J.S. & Potgieter, T. 2021. Case studies as an approach to challenges in public administration. In J. S. Wessels, T. Potgieter, & T. Naidoo (Eds.), *Public Administration Challenges: Cases from Africa.* Cape Town: Juta.

Wessels, J.S. 2024. Transforming the master of public administration education for a changing world of work: A personal account of a South African case. *Teaching Public Administration*, 42(1): 15–41.

Wessels, J.S. 2020. Challenges to inform the curricula of Master of Public Administration programmes. *Teaching Public Administration*, 38(2): 144–167.

Wessels, J.S. Pauw, J.C. & Thani, X.C. 2014. *Reflective public administration: Context, knowledge and methods*. Pretoria: UNISA Press.

Wong, N.S., Lee, S.S., Kwan. T.H. & Yeoh, E. 2020. Settings of virus exposure and their implications in the propagation of transmission networks in a COVID-19 outbreak. *The Lancet Regional Health - Western Pacific*, 4(100052): 8–9.

World Health Organization (WHO). 2023. *Coronavirus disease (COVID-19)*. Available at: https://www.who.int/health-topics/coronavirus#tab=tab_1. [Accessed: 11 July 2023].

Wright, C. Y., Mathee, A., & Oosthuizen, M. A. 2013. Challenging times for environmental health in South Africa: The role of the Environmental Health Research Network. *South African Medical Journal*: 7287, 104(1): 20–21.

Yin, R. K. 2009. Case study research: degn and methods (4th Ed.). Thousand Oaks, CA: Sage, 48.

Yin, R. K. 2018. *Case Study Research and Applications: Design and Methods* (6th ed.). Los Angeles: SAGE.

Zhao, F., Bali, S., Kovacevic, R., Weintraub, J. 2021. A three-layer system to win the war against COVID-19 and invest in health systems of the future. *BMJ Global Health*, 6:e007365.

Zimba, A. 2021. Why is it worth it? Sharing lessons and experiences: adaptation and resilience of environmental health practitioners in implementing key intervention strategies during covid-19 pandemic: Cape Town perspective: South Africa. IFEH 4th World Academic Conference on Environmental Health – book of abstracts. Available at: https://ojs.vvg.hr/index.php/IFEH/article/view/81. [Accessed: 23 June 2024].

Zongozzi, J.N. & Wessels, J.S. 2016. Variables Influencing Case Study Research Design in Public Administration. *Administratio Publica*, 24(2): 212–233.

Zongozzi, J.N. & Wessels, J.S. 2017. Case Studies in South African Public Administration: A Review of Masters Dissertations from 2005 to 2012. *Journal of Public Administration,* 52(1): 260–274.

ANNEXURES

ANNEXURE A: Ethical Clearance Certificate (UNISA)

College of Economic and Management Sciences_ERC Public Administration and Management

Date: 04/02/2025

Dear: Mr Zachary Rudolph

Decision: Ethics Approval from 04/02/2025 to 03/02/2028

Ref #: 3018
Name: Mr Zachary Rudolph
Student #: 10183353

Researcher: Mr Zachary Rudolph

[redacted]

10183353@mylife.unisa.ac.za 084 9811 555

Supervisor: Professor Jacobus Wessels

Email address: wessejs@unisa.ac.za

PUBLIC ADMINISTRATION CAPABILITIES DEMONSTRATED BY ENVIRONMENTAL HEALTH OFFICIALS OF THE CITY OF CAPE TOWN DURING THE COVID-19 PANDEMIC

Qualification: Master of Administration in Public Administration (98581)

Thank you for the application for research ethics clearance by the College of Economic and Management Sciences_ERC Public Administration and Management for the above mentioned research study Ethics approval is granted for {three years }.

The **{low }risk application** was **reviewed** by College of Economic and Management Sciences_ERC Public Administration and Management and it is in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the College of Economic and Management Sciences_ERC Public Administration and Management .
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.

6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.

7. No field work activities may continue after the expiry date (03/02/2028). Submission of a completed research ethics progress report will constitute an application for renewal, for Ethics Research Committee approval.

Additional Conditions

1. Disclosure of data to third parties is prohibited without explicit consent from Unisa.
2. De-identified data must be safely stored on password protected PCs.
3. Care should be taken by the researcher when publishing the results to protect the confidentiality and privacy of the university.
4. Adherence to the National Statement on Ethical Research and Publication practices, principle 7 referring to Social awareness, must be ensured: "Researchers and institutions must be sensitive to the potential impact of their research on society, marginal groups or individuals, and must consider these when weighing the benefits of the research against any harmful effects, with a view to minimising or avoiding the latter where possible." Unisa will not be liable for any failure to comply with this principle.

Note

The reference number 3018 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Kind regards,



Dr Promise Raseala
Chair of College of Economic and Management Sciences_ERC Public Administration and Management
E-mail: raseaps@unisa.ac.za



Prof. Maelekanyo Christopher Mulaudzi
Executive Dean / By delegation from the Executive Dean of College of Economic and Management Sciences_ERC Public Administration and Management.
E-mail: tshilmc@unisa.ac.za

ANNEXURE B: Approval to conduct research (City of Cape Town)

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

CITY HEALTH

Dr Natacha Berkowitz
Epidemiologist: City Health

T: 021 400 6864
E: Natacha.Berkowitz@capetown.gov.za

Ref: 10957

2025-03-27

RE: PUBLIC ADMINISTRATION CAPABILITIES DEMONSTRATED BY ENVIRONMENTAL HEALTH OFFICIALS OF THE CITY OF CAPE TOWN DURING THE COVID-19 PANDEMIC

Dear Mr Zachary Rudolph

Your research request has been approved as per your protocol. Please refer to the subsequent pages for the approval of any facilities or focus areas requested. Approval comments on any proposed impact on City Health resources are also provided.

Please ensure all approvals from line management is received.

Please note the following:

1. All individual information obtained must be kept confidential.
2. A copy of the final report must be uploaded to https://web1.capetown.gov.za/web1/mars/ProjectClosure/UploadReport/0/10957, within 6 months of its completion and feedback must also be given to the clinics involved.
3. Your project has been given an ID Number (10957). Please use this in any future correspondence with us.
4. No monetary incentives to be paid to clients on the City Health premises
5. If this research gives rise to a publication , please submit a draft before publication for City Health comment and include a disclaimer in the publication that "the research findings and recommendations do not represent an official view of the City of Cape Town "
6. As the research is approved as per submitted protocol, any changes to the protocol need to be submitted and approved by City Health prior to implementation.

Thank you for your co-operation and please contact me if you require any further information or assistance.

Kind Regards
Dr Natacha Berkowitz Epidemiologist: City Health

ANNEXURE C: Information sheet & Informed consent form

Ethical clearance #: 3018

Research permission #: 10957

INFORMATION SHEET

Dear Prospective participant,

You are invited to participate in a semi-structured interview conducted by Mr. Zachary Rudolph under the supervision of Professor JS (Kobus) Wessels, a Professor Emeritus in the Department of Public Administration and Management towards a Master of Administration in Public Administration at the University of South Africa.

You were selected to participate in this survey because of your relevance to the study i.e. working as an essential service during the Covid19 pandemic (2020-2022) at the City of Cape Town. We do not foresee that you will experience any negative consequences by completing the survey. It is to be noted that non-availability of anonymity in the Focus Group setting will exist. By participating in this project, you agree that the information you provide may be used for research purposes, including dissemination through peer-reviewed publications and conference proceedings. You are, however, under no obligation to participate and you can withdraw from the study prior to completing the interview. If you choose to participate in it will take up no more than 60 minutes of your time.

You will not benefit from your participation as an individual, however, it is envisioned that the findings of this study will establish if the Covid19 pandemic has brought upon key contributions that will benefit the Environmental Health Service in Cape Town. It is anticipated that the information we gain from this survey will help us to enrich the Environmental Health body of knowledge and contribute to research evidence-based decision making when dealing with a similar challenge.

The researcher undertakes to keep any information provided herein confidential, not to let it out of his possession and to report on the findings from the perspective of the participating group and not from the perspective of an individual.

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
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The interview will be recorded (audio only) using a mobile device. The records (data) will be kept for 15 years for audit purposes and as per the UNISA Research Ethics policy, where after it will be permanently destroyed. Electronic versions will be permanently deleted from the hard drive of the computer. You will not be reimbursed or receive any incentives for your participation in the survey.

The research was reviewed and approved by Research Ethics Review Committee (ERC) of the Department of Public Administration and Management within the College of Economic and Management Sciences at Unisa. The primary researcher, Mr. Zachary Rudolph, can be contacted during office hours at 084 9811 55 (cell). The study leader, Professor JS (Kobus) Wessels, can be contacted during office hours at 083 955-8310 (cell) or wessejs@icloud.com.

Should you have any questions regarding the ethical aspects of the study, you can contact the chairperson of the College of Economic and Management Sciences ERC Public Administration and Management, Dr PS Raseala - email address: raseaps@unisa.ac.za. Alternatively, you can report any serious unethical behaviour at the University's Toll Free Hotline 0800 86 96 93.

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CONSENT TO PARTICIPATE IN THIS STUDY

Research title:

PUBLIC ADMINISTRATION CAPABILITIES DEMONSTRATED BY ENVIRONMENTAL HEALTH OFFICIALS OF THE CITY OF CAPE TOWN DURING THE COVID-19 PANDEMIC

I, …….. (participant name & surname), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

- I have read and understood the study as explained in the information sheet.
- I have had sufficient opportunity to ask questions and prepared to participate in the study.
- I understand that my participation is voluntary and that I am free to withdraw at any time without penalty.
- I am aware that the findings of this study will be anonymously processed into a dissertation.
- I agree to be interviewed and/or to complete a questionnaire.

Participant's name and surname	**Date**	**Signature**
Zachary Rudolph	06/12/2024	
Researcher's name and surname	**Date**	**Signature**

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ANNEXURE D: Naïve sketch example

NAÏVE SKETCH

Interview framework for EHP and SEHP Officials linked to Environmental Health

Can you tell me about your experiences of the functions within the Environmental Health Department during the period before March 2020?
Prior to March 2020, environmental health functions as per the scope of profession were carried-out accordingly and EHPs were able to ensure health surveillance and diseases control and food premises and ECDs monitoring.
Can you tell me about your experience of challenges posed by Covid-19 on the ability of your Environmental Health Department to perform its functions during the pandemic?
The COVID-19 pandemic presented significant challenges to Environmental Health Department, impacting our ability to perform essential functions such as Public Engagements and public health monitoring. Public physical engagements and public health monitoring to raise awareness was a challenge as we had to adhere to COVID-19 protocols.
Can you tell me how you and / or your colleagues responded to specific challenges during the pandemic?
Engaging with communities through various channels, including radio, social media i.e whatsapp,and community leaders, was crucial to respond to the challenges and encourage compliance with health guidelines and COVID-19 protocols.
Can you tell me what lessons were learned from the Covid-19 experience by you and /or the Environmental Health Office?
The COVID-19 pandemic provided important lessons, particularly in environmental health and community engagement. The approach of transparent communication and engaging with general public assisted as it bought a more unified understanding of the pandemic and its risks and how to best follow its protocols. The lessons were important as they helped in preparing us for future health emergencies.

Zachary Rudolph

ANNEXURE E: Interview questions

Group A: Focus Groups (EHP's and SEHP's)

Can you tell me about your experiences of the functions within your Environmental Health Office during the period before March 2020.
Can you tell me about your experience of challenges posed by COVID-19 on the ability of your Environmental Health Office to perform its functions during the pandemic?
Can you tell me how you and your colleagues responded to specific challenges during the pandemic?
Can you tell me what lessons were learned from the COVID-19 experience by you and/or the Environmental Health Office? Can you remember examples of you and/or your colleagues – • Had to reflect on the value of previous experiences for this challenge? • Had to adapt existing practices to deal with a challenge? • Were forced be responsive (react in a positive, pre-emptive and risk-based manner) to a new challenge? • Were you forced to collaborate with different stakeholders to deal with challenges? • Were you forced to deal with different perspectives on problems and solutions?

Group B: Individual (Managers)

Can you tell me about your experiences of the functions within the Environmental Health Department during the period before March 2020.
Can you tell me about your experience of challenges posed by COVID-19 on the ability of your Environmental Health Department to perform its functions during the pandemic?
Can you tell me how you and your colleagues responded to specific challenges during the pandemic?
Can you tell me about your experience with decision making during the pandemic?

Can you tell me what lessons were learned from the COVID-19 experience by you and/or the Environmental Health Office?

Can you remember examples of you and/or your colleagues –

- Had to reflect on the value of previous experiences for this challenge?
- Had to adapt existing practices to deal with a challenge?
- Were forced be responsive (react in a positive, pre-emptive and risk-based manner) to a new challenge?
- Were you forced to collaborate with different stakeholders to deal with challenges?
- Were you forced to deal with different perspectives on problems and solutions?

ANNEXURE F: Essential services permit example

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

CS&H2-4.NO.256

COVID19: RENDERING OF ESSENTIAL SERVICES

PERMIT TO PERFORM AN ESSENTIAL OR PERMITTED SERVICE

REGULATIONS 16(2)(b) and 28(4)

Please note that the person to whom this permit is issued must at all times carry a form of identification to be presented together with this permit. If no identification is presented the person to whom this permit is issued will have to return to his is her place of residence during the alert levels.

I,

Surname				
Full names				
Identity number				
Contact details	Cell Nr	Tel Nr (w)	Tel No (H)	Email address
Physical address of Institution				

Hereby certify that:

Surname	
Full names	
Identity number	
Place of residence of employee	

Is authorised to perform essential services on behalf of the City of Cape Town Metro Municipality during the alert levels.

Signed at Cape Town, on the day of 2020

_____

City Manager: City of Cape Town or his nominee

ANNEXURE G: Certificate of Appreciation from NDOH



Certificate of Appreciation

Presented to

Environmental Health Practitioners
In the
City of Cape Town Metropolitan Municipality

For the heroic delivery of extraordinary Environmental Health Services in response to the COVID-19 pandemic

Issued by
Dr SSS Buthelezi
Director-General: National Department of Health

Signed: _____ Date: 21/09/2023

health
Department:
Health
REPUBLIC OF SOUTH AFRICA

NDP 2030

ANNEXURE H: Professional Editors Certificate

MASELEMOCONNECT PTY LTD 28 November 2025

I hereby confirm that I have proof-
read, and edited the style, grammar,
and language of

A

Dissertation

submitted in accordance with the requirements for

the degree of

MASTER OF ADMINISTRATION

in the subject

PUBLIC ADMINISTRATION

By

ZACHARY JESSE RUDOLPH

On the Topic

PUBLIC ADMINISTRATION CAPABILITIES DEMONSTRATED BY ENVIRONMENTAL HEALTH OFFICIALS OF THE CITY OF CAPE TOWN DURING THE COVID-19 PANDEMIC

(188 pages, 42 573 words)

Note: The edited work described here may not be identical to that submitted. The author, at its sole discretion has the prerogative to accept, delete or change amendments made by the editor before submission.

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- Editing certificate: UCT, Cape Town
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ANNEXURE I: Turnitin digital certificate

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